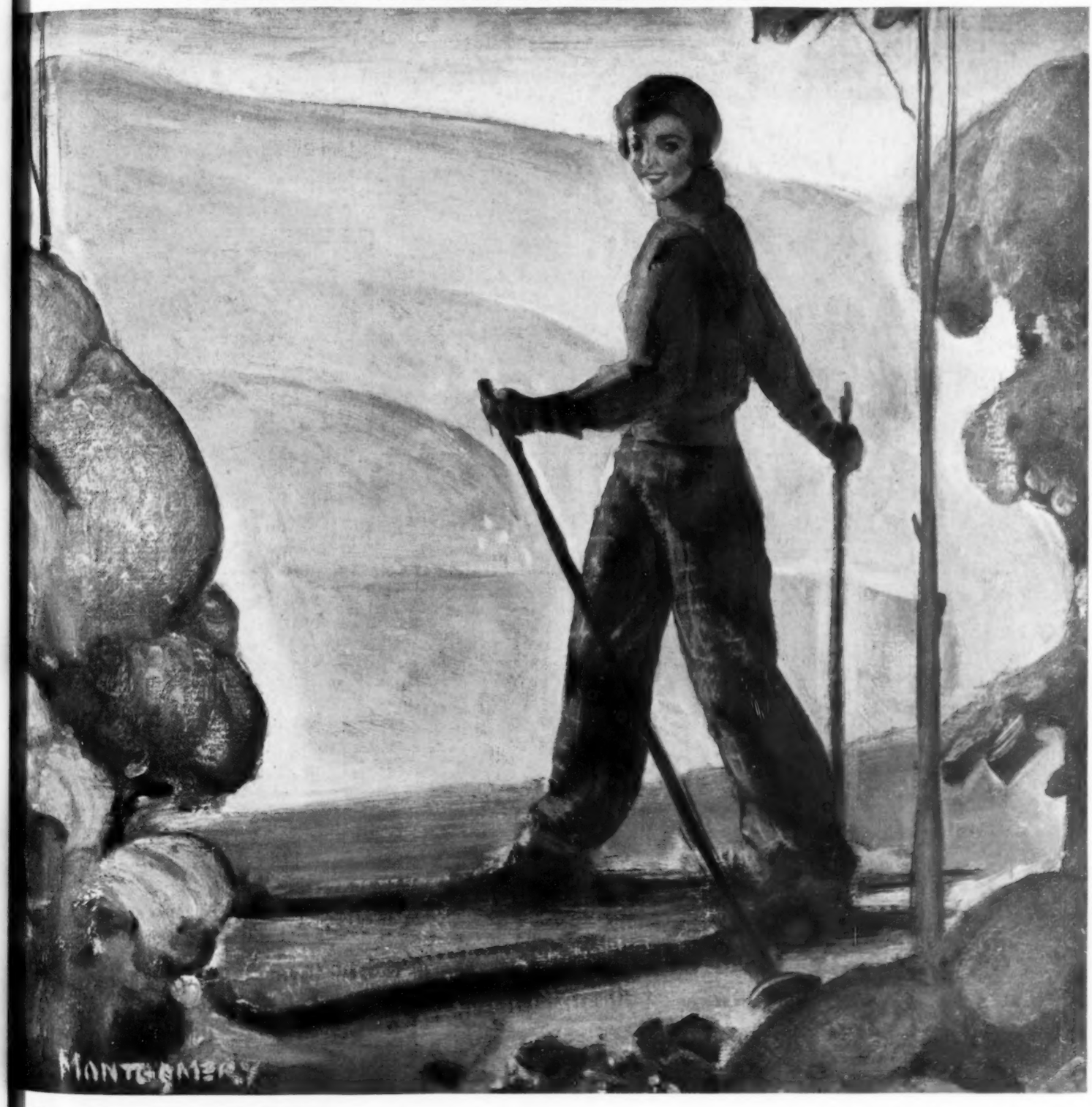
HYGEIA

The HEALTH MAGAZINE

PUBLISHED BY THE AMERICAN MEDICAL ASSOCIATION



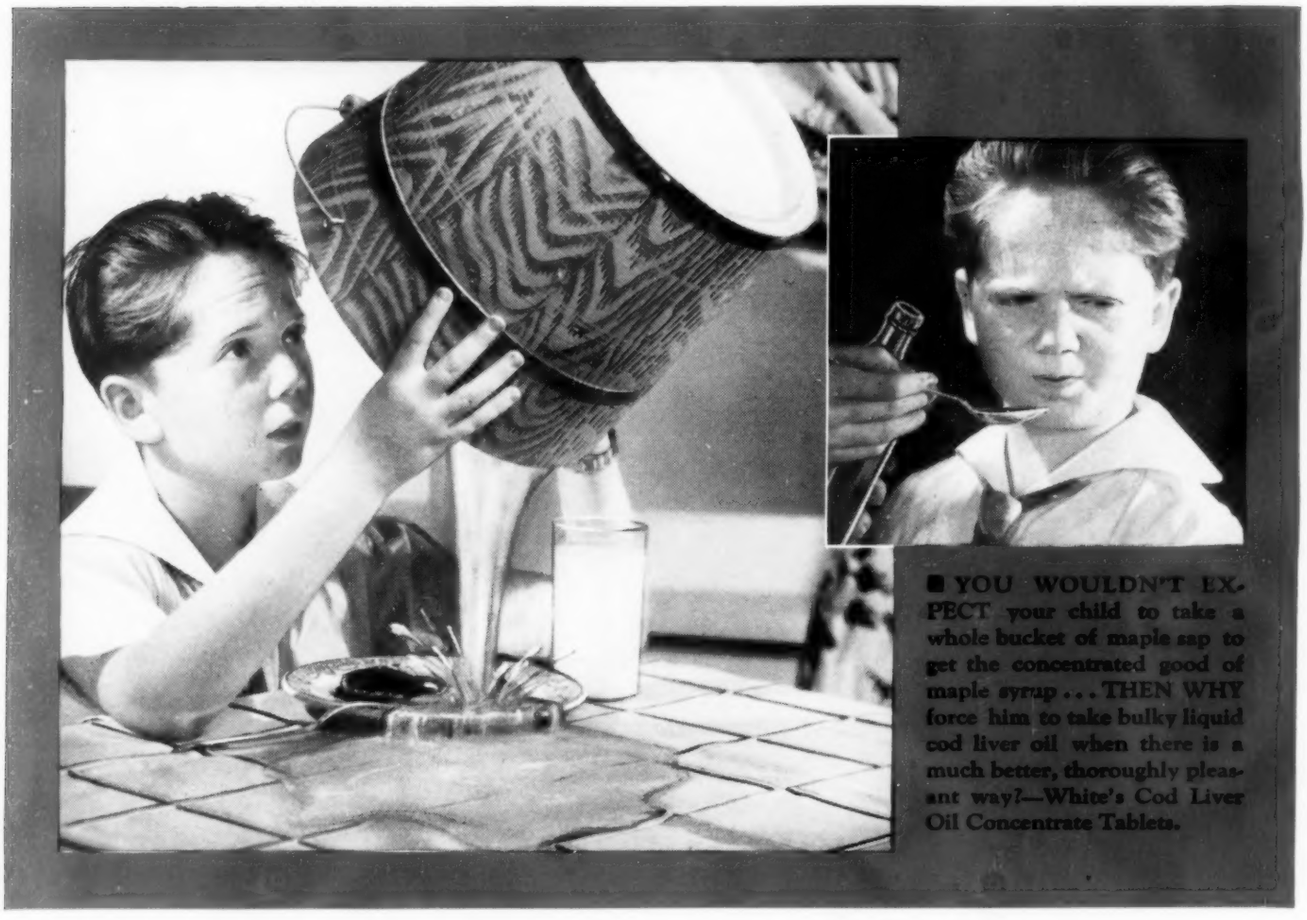
February 1935

A Heart to Heart Talk

25 Cents

Experimentation and Medicine

Undulant Fever



■ YOU WOULDN'T EXPECT your child to take a whole bucket of maple sap to get the concentrated good of maple syrup . . . THEN WHY force him to take bulky liquid cod liver oil when there is a much better, thoroughly pleasant way?—White's Cod Liver Oil Concentrate Tablets.

Repeated tests prove conclusively that the

HEALTH-PROMOTING VITAMINS A AND D

of a teaspoonful of cod liver oil have been concentrated into each of these candy-like tablets

ACCEPTED AMERICAN MEDICAL ASSN Council on Pharmacy and Chemistry

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And these tablets are well suited for infant feeding. They dissolve quickly and thoroughly—just crush them and mix with orange juice, tomato juice, or formula.

White's COD LIVER OIL CONCENTRATE TABLETS

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HYGEIA•

FEBRUARY 1935

THE HEALTH MAGAZINE

Published by the American Medical Association
Edited by Morris Fishbein, M.D.

Volume 13
Number 2

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by Dr. Walter M. Simpson, author of "Tularemia" and numerous articles in which he describes his research in tularemia, undulant fever, pernicious anemia, cancer, goiter and other diseases.

A HEART TO HEART TALK.....Page 116
which was given by Dr. Robert Sterling Palmer in a health broadcast for the Massachusetts Medical Society.

PREVENTABLE DISEASES IN THE WASHINGTON FAMILY..Page 118
a timely analysis by James A. Tobey, Dr. P.H., author of "Some Famous Victims of Smallpox," "Two American Presidents Who Had Cancer," "Tuberculosis and the Kings of France," and numerous other articles and books.

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MEDICINE MOVES FORWARD

The American Medical Association will broadcast a program entitled MEDICINE MOVES FORWARD, over a network of the National Broadcasting Company, Feb. 18, 1935, at 6 p. m. eastern standard time. The speakers will be Dr. Walter L. Bierring, President of the American Medical Association, on ADVANCEMENT IN MEDICAL EDUCATION, Dr. Ray Lyman Wilbur, president of Leland Stanford University, on PROLONGATION OF LIFE, and Dr. Kendall Emerson, executive secretary, National Tuberculosis Association, on THE BATTLE AGAINST TUBERCULOSIS. The speakers will be introduced by Dr. Morris Fishbein, Editor of the Journal of the American Medical Association and of HYGEIA, The Health Magazine.

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FEBRUARY 1935

New Food and Drugs Legislation

ALREADY one bill has been introduced into the Senate, and others perhaps will follow before the Congress of the United States, requesting revision of the Food and Drugs Act, which was passed almost thirty years ago. Measures are necessary to bring such legislation into accord with the conditions under which we live.

At the time when the Food and Drugs Act was passed, advertising had not developed into the vast industry which it is today. Radio had not yet come on the scene to influence millions of listeners at one time. The science of nutrition had not yet developed a realization of the significance of the vitamins and the mineral salts on which the exploitation of innumerable foods is based today. The cosmetic industry was in its infancy compared to the present gigantic purchases of creams, powders, lotions, ointments, tonics and what not, purveyed for producing the similitude of beauty and health where both are absent. The agency system in advertising, whereby an intermediary comes into the picture between the manufacturer and the medium of publicity, is another important development.

Legislation must keep pace with changes in the nature of our civilization. Unless it does so, evils develop to a point at which legislation finds it difficult to bring about control.

BECAUSE of the difficulties involved in this situation, the Board of Trustees of the American Medical Association requested the Council on Pharmacy and Chemistry of the Association to recommend the phases of new legislation that it deemed advisable. A similar request was made to the Committee on Foods. The Council on Pharmacy and Chemistry finds first of all the necessity for so regulating all drug advertising that it shall be truthful in statement and not deceptive by implication. It is understood, of course, that advertising includes not only statements made on the label and on the package, which is all the present law deals with, but also such statements as may be made in circulars, letters sent to prospective purchasers directly by mail, in newspapers and magazines, in programs and hand bills, on billboards and over the radio, over which the present law has no control.

ONE OF the difficulties in securing proper legislation for the control of advertising has been the placing of responsibility. Since it is obviously impossible for every newspaper, magazine and radio station to maintain a scientific board of advisers, it is necessary in any new legislation to fix the responsibility for misstatements. This responsibility must rest eventually with the manufacturer; but unless the medium of publicity can produce a guarantee from the manufacturer that the statements made in advertising are warranted, truthful and honest, that agent of publicity must bear the responsibility for deceiving the public.

In a previous generation it might hardly have been worth while for the public to be informed concerning the ingredients of many of the drugs and foods which it purchased. Because of the advancement of health education in our schools, however, coming generations will have the necessary information to enable them to appraise to some extent the products which they buy. The intelligent public wants to be informed concerning the active ingredients and the amounts of such active ingredients in various products. Hence it has been recommended that the active ingredients and the amounts or proportions of all such ingredients should be disclosed on the labels of all mixed drug products and that these

EDITORIAL

should be emphasized also in the advertising of such products. The public is entitled to know particularly about the presence of so-called habit forming drugs. The presence of morphine, cocaine and cannabis and of their derivatives is a serious matter to the person who purchases such preparations without the prescription of a physician. Obviously when they are included in a physician's prescription, the doctor takes the responsibility for their use.

The Council on Pharmacy and Chemistry is also concerned with the possibility of the use of names of diseases on the labels of products and in advertising, since it is well known that the publication of names of such diseases leads to attempts at self medication in certain serious disorders in which such self medication may be hazardous to the health and life of the person concerned. If, however, a medicament has been established as a specific, for example, antitoxin in diphtheria, or if a remedy has been scientifically established as of worth in the treatment of other conditions, as insulin in diabetes, there would seem to be no reason why this should not be mentioned, both because it is an established fact and also because of its educational value.

In order to overcome certain growing evils, it is recommended that cosmetics should be included under the law and that the term "drugs" should be understood to include all devices, substances and preparations intended for the treatment of disease or urged for their effects on the structure and functions of the human body.

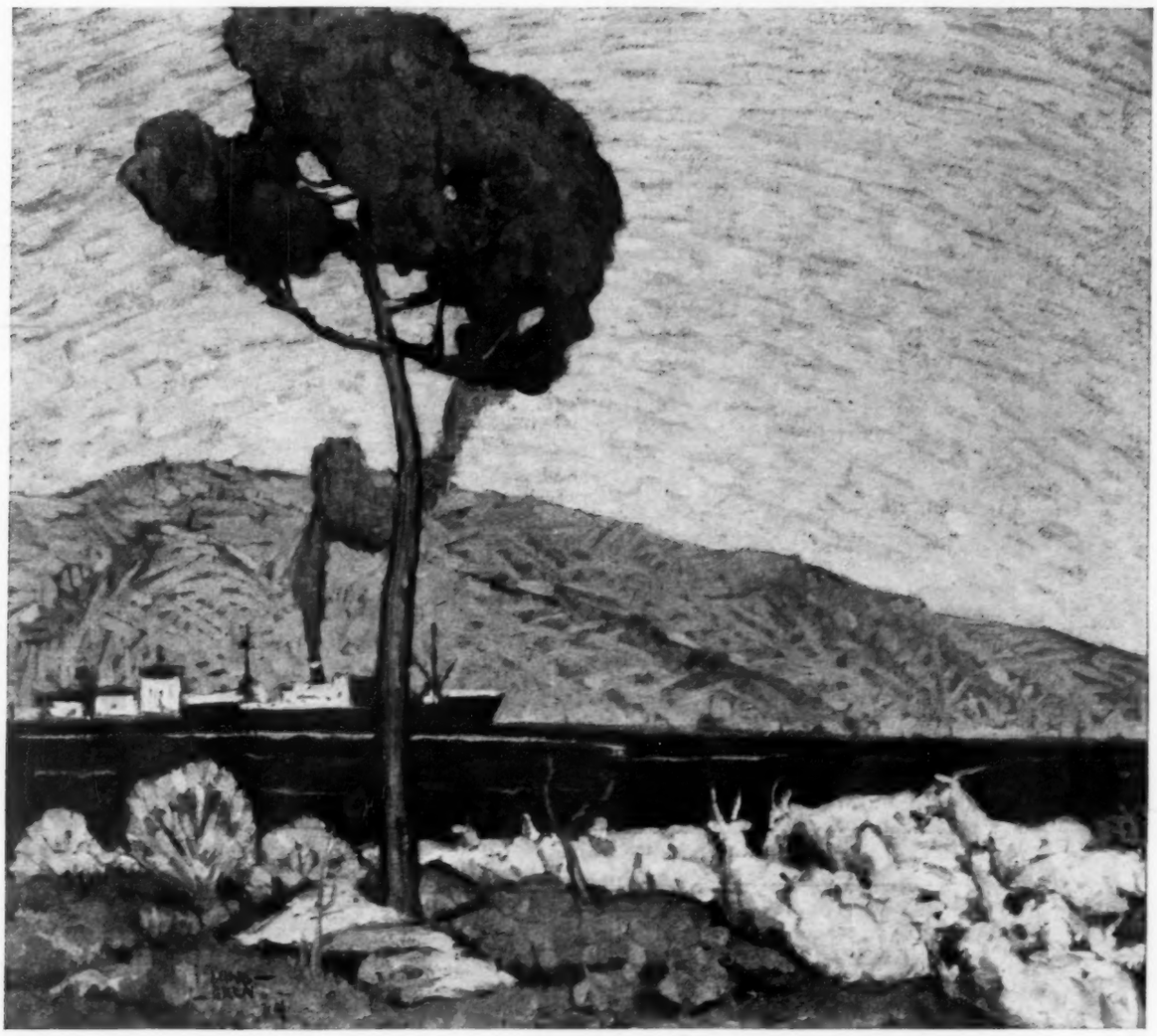
SOME method must be found to control the testimonial field; hence testimonials and opinions used in advertising of drugs and drug preparations should be accompanied by the name and address of the writer, and all such opinions must be considered as advertising claims.

Recognizing the importance of adequately enforcing any such new legislation, the Council on Pharmacy and Chemistry urges finally that more severe penalties be provided under the law, commensurate with the seriousness of the violations.

SUPPLEMENTING these recommendations of the Council on Pharmacy and Chemistry, the Committee on Foods asks the banning of names of diseases from the labels of food products except for nutritional disorders which result from deficiencies in the diet. It asks the banning of testimonials in food advertising when they are written by persons unqualified to express a scientific opinion. The Committee on Foods believes that nonfood material, such as resinous glacé or shellac, should not be used to cover confectionery and that metallic trinkets should not be included in candies because of the danger that they may get into the stomach or windpipe and produce serious results. The public must be protected against contamination in the packing of foods. Adulterations must be better controlled. Foods may be given fanciful names, but the public should be informed as to the important ingredients in any food mixture. This is especially important because of the newer knowledge relating to the manner in which persons may be sensitive to various protein substances.

These are but a few of the significant factors that must be given attention in any new legislation on the subject of foods, drugs and cosmetics. Of greatest significance, however, is the provision of some type of control over advertising. The vast majority of drugs, foods and cosmetics sold today are promoted primarily through the advertising rather than by the statements made on the labels or on the packages. The time is ripe for a reform in this field. The successful enactment of legislation covering the points that have been mentioned will yield immeasurable good to the health and pocketbooks of the American people.

Undulant Fever—THEN



THE OFFICERS AND CREW WERE PLEASED AT THE THOUGHT OF DRINK THROUGHOUT THE LONG VOYAGE, FOR THE CARGO INCLUDED

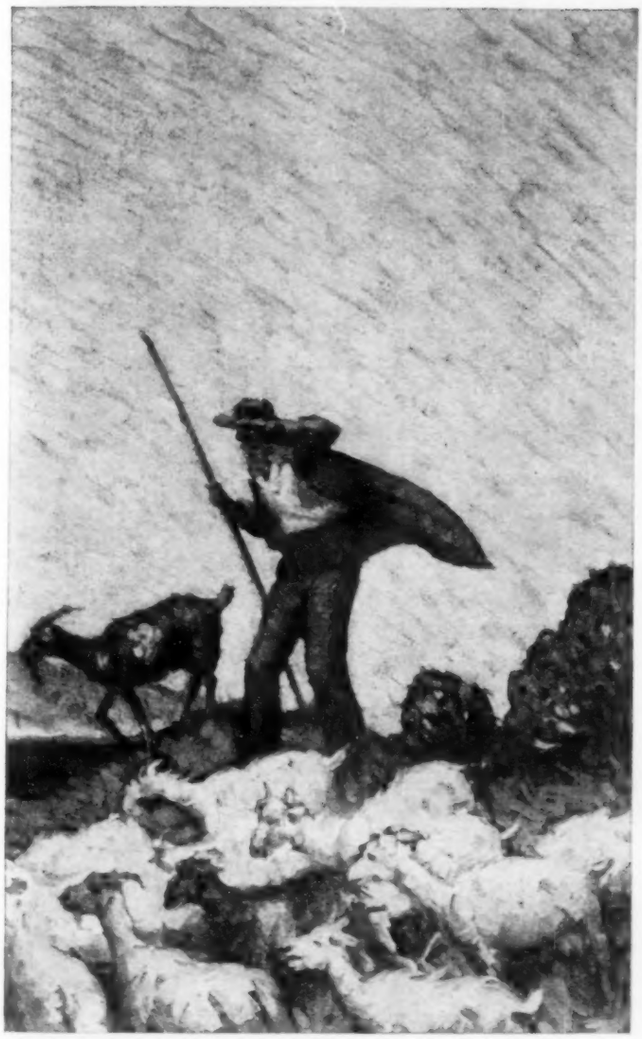
ON AUGUST 19, 1905, the good ship *Joshua Nicholson* stood out from the Island of Malta and set her course for Antwerp. As the rugged silhouette of the Island of Malta disappeared below the horizon, the officers and crew were cheerful over the prospect of a homeward voyage to New York after a short pause at Antwerp. They were also pleased at the thought of having fine fresh milk to drink throughout the long voyage, for the cargo included sixty-five Maltese goats. Shortly before the *Joshua Nicholson* steamed away from the Island of Malta, a representative of the U. S. Bureau of Animal Industry had purchased sixty-one fine milch goats and four male goats. These goats had been selected from the best herds on the island and were to be used to build up strong healthy herds of milk producers in this country.

But it was not such a pleasant voyage after all, because eight of the twelve officers and men who drank the goat's milk became sick. In quarantine at Antwerp it was discovered that the eight sick men had drunk large quantities of raw goat's milk. Two of the four who escaped the illness had boiled the milk, while the other two had drunk only a little of it. Blood tests of the sick sailors left little doubt that they had acquired their sickness from the raw goat's milk. The goats were then transshipped on the steamship *St. Andrew.* On arrival at the quarantine station at Athenia, N. J., it was found that the milk contained large numbers of the microbe known to be the cause of undulant, or Malta, fever. The goats were slaughtered, but a woman at the quarantine station had already contracted the disease.

THIS news created little excitement in the United States, since the disease was practically unknown here. It is true that the year before,

AND NOW

By Walter M. Simpson



HAVING FINE FRESH MILK TO SIXTY-FIVE MALTESE GOATS.

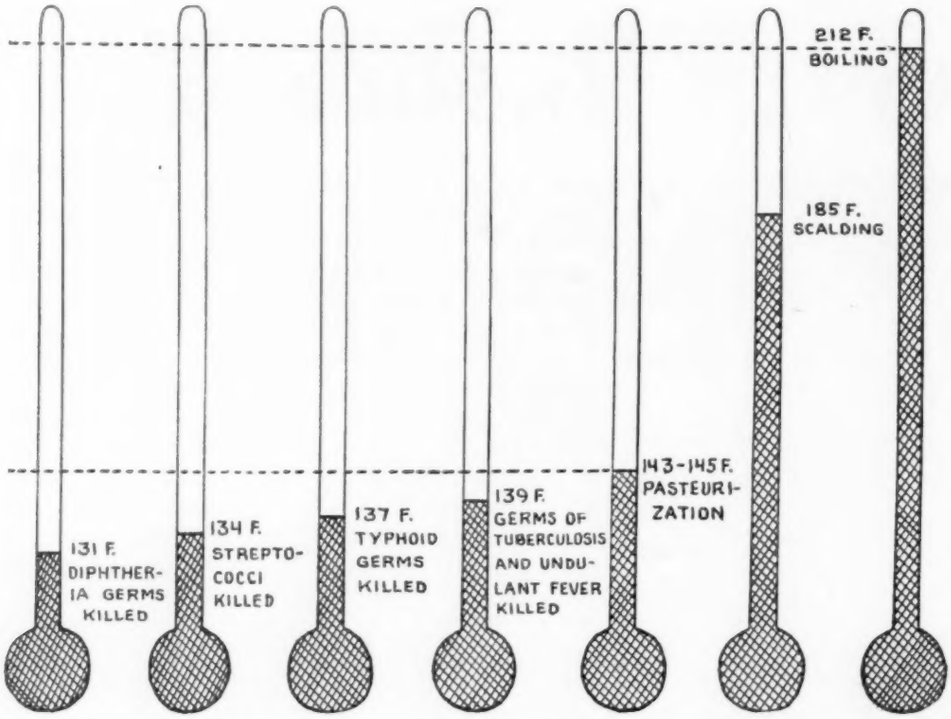
Col. C. F. Craig of the U. S. Army had discovered the occurrence of the disease in a nurse who had never been out of this country. Craig suggested at this time that many patients with fevers which resembled typhoid might actually be suffering from undulant fever. A few cases of the disease were reported from goat raising areas in Texas, New Mexico and Arizona in 1911 and 1913. Then the disease apparently faded from medical consciousness until 1922, when Drs. G. C. Lake and W. W. Watkins published their startling report of an epidemic of undulant fever in Phoenix, Ariz.; they had traced the epidemic to the infection of raw goat's milk.

Up to this time it was perfectly natural for physicians to associate undulant fever only with a goat source of infection. On the Island of Malta and in countries bordering on the Mediterranean Sea the disease had been widely prevalent for many years. During the Crimean War, 1854-1856, an obscure, irregular fever played havoc with British troops quartered in Mediterranean areas. This aroused British investigators to seek the cause. After a long and discouraging search, David Bruce, while studying the disease on the Island of Malta, discovered the causative microbe and called it Micrococcus melitensis. A British commission, headed by Bruce, studied the disease on the Island of Malta from 1904 to 1907. They demonstrated that the drinking of raw goat's milk containing the undulant fever microbe was the common source of infection for human beings. Then came orders prohibiting the use of raw goat's milk by the members of the British military and naval forces quartered there, with an immediate and rapid decline in the occurrence of the disease.

Some eleven years after Bruce's important discovery, Bernhard L. F. Bang, a veterinarian of Copenhagen, made the apparently unrelated discovery that a specific microbe, which he called Bacillus abortus, was responsible for the common disease of cattle known as contagious abortion.

For twenty-one years the microbes discovered by Bruce and Bang were regarded as separate, unrelated species. In 1917 and 1918, while the thoughts of most of the people in the world were centered on man's destruction of man in the muddy trenches of France, Alice Evans, a quiet, modest research worker in the laboratory of the Public Health Service at Washington, discovered that the microbes of Bruce and Bang were, for all practical purposes, one and the same. In the announcement of her discovery she made this prophetic suggestion, "Considering the close relationship between the two organisms, and the reported frequency of *Bacillus abortus* in cows' milk, it would seem remarkable that we do not have a disease resembling Malta (undulant) fever prevalent in this country." What has happened since that time has brought complete fulfilment of Alice Evans' prophecy.

After another lag of five years, Dr. C. S. Keefer of Johns Hopkins Hospital reported the first case of undulant fever in this country caused by the Bang microbe. Then came a report from South Africa, followed by others from far corners of the earth, proving that undulant fever is commonly contracted from cattle infected with the microbe of contagious abortion. It became more and more apparent that undulant fever in human beings was most prevalent in those districts in which contagious



PASTEURIZATION, OR THE ARREST OR PREVENTION OF FERMENTATION IN LIQUIDS BY HEATING, IS ATTAINED AT A TEMPERATURE MUCH LOWER THAN THE BOILING POINT.

abortion of cattle was widespread. It was also established that the disease existed in swine and that human beings often acquired the disease from that source.

In 1926 Charles Carpenter found the microbe in the milk of two thirds of a group of cows with contagious abortion. Soon after, he recovered the same microbe from the blood of ten human beings with undulant fever. He injected five pregnant heifers with these microbes; all promptly aborted. One of the heifers was not slaughtered for six months, during which time she continued to eliminate the microbes in large numbers in her milk. Now the cycle of fact finding was complete; the microbe that produces contagious abortion in cattle, swine, goats and other domestic animals was found to be capable of producing in human beings a disease indistinguishable from the Mediterranean type of Malta fever.

AMERICAN physicians were quick to recognize that these observations provided an explanation for their failure to arrive at a confirmed diagnosis in many cases of typhoid-like or malaria-like diseases. The medical journals soon reflected the alertness of wide-awake physicians in the publication of an ever growing number of cases of undulant fever. In 1926, 46 cases were reported; in 1927, 217; in 1928, 649; in 1929, 952; in 1930, 1420; in 1931, 1351; in 1932, 1326, and in 1933, 1659. In addition to recorded cases from every state in the Union, there were reports of many cases in Canada, Denmark, Sweden, Norway, Germany, the Netherlands, Switzerland, France, Italy, Greece, Southern Rhodesia, Tunis, Algeria, New Zealand and other countries in which the disease had apparently escaped recognition for years before the discovery made by Alice Evans.

The rest of the story is one of the valiant shoulder-to-shoulder fight which has been waged by physicians, public health workers, veterinarians and dairymen during the past eight years to control the disease among animals and human beings. The success which they have achieved in many localities is a shining example of the value of public health education. The ideal method of attack would be the elimination of the disease from its animal hosts. Attempts are being made to build up abortion-free herds by blood testing, isolation or disposal of all reactors, and replenishing clean herds with non-reactors or their own abortion-free calves. This comprehensive program has been applied only to a few herds in this country, and even these strenuous efforts have not met with uniform success. Many dairymen have discovered that the elimination of reactors has been a profitable venture, since cows with the disease are notoriously poor milk producers. The tendency of the cow to abort is not the only sign of the disease. Many cows have Bang's abortion disease and eliminate the microbes in great numbers in their milk without manifesting any of the common symptoms of the disease, such as abortion, inflammation of the udder, sterility or lessened milk yield. The simple and inexpensive blood test is the most reliable way of identifying the infected animals.

THE job of eliminating the disease among cattle is fraught with all sorts of difficulties and at best will require many years. In many respects the problem is one of animal hygiene similar to that encountered in the eradication

of bovine tuberculosis. Some modification of the "area plan," which has met with such great success in large areas of this country in eradicating bovine tuberculosis, may provide the solution of this problem.

While veterinarians and dairymen are engaged in this long fight, there appears to be but one way for human beings to protect themselves against the protracted debilitating effect of undulant fever; that is, by destroying any disease-producing microbes that might be in the milk. For urban dwellers it is a simple matter to insist on adequate pasteurization of all milk and dairy products. For those persons who live on farms, or in small communities where pasteurization is not yet practiced, home pasteurization may be carried out by placing the milk in an aluminum vessel and heating it to 155 F., stirring constantly; the vessel should then be set immediately in cold water, and the stirring should be continued until the milk is cool.

ALL statements that the food value of milk is appreciably lessened by pasteurization have no basis in fact. The only vitamin that is affected by pasteurization is vitamin C, which is never present in adequate amounts to prevent scurvy, even in raw milk. The feeding of orange juice or tomato juice to remedy this deficiency is equally essential whether raw, pasteurized or boiled cow's milk is fed to the infant. The modern pediatrician knows that all cow's milk for infant feeding should be boiled, first, because boiling destroys disease-producing microbes, and second, because it breaks up the tough curd and renders the milk more digestible.

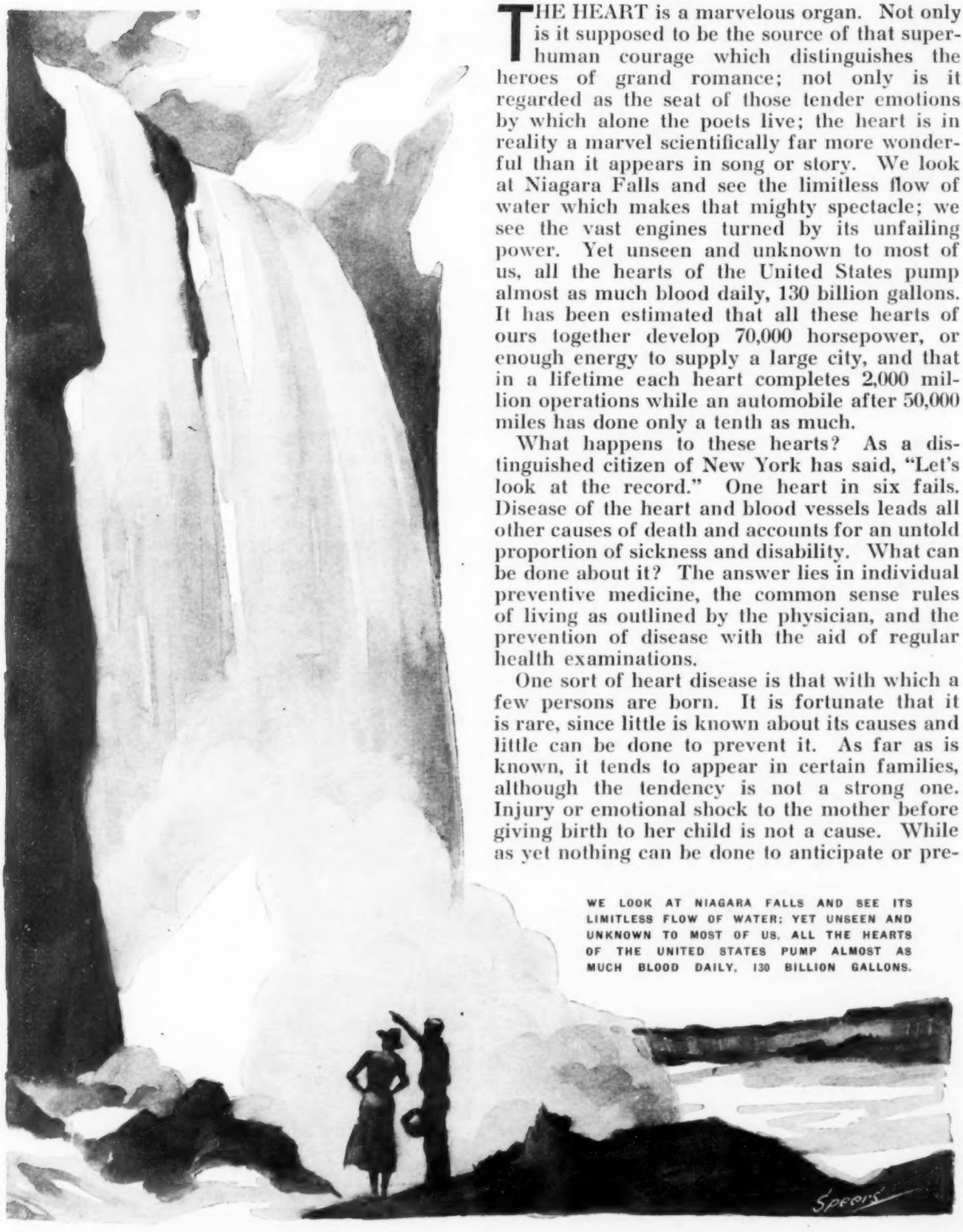
Milk is our most nearly perfect food. The consumption of pasteurized milk has enormously increased during the past decade. This great gain is largely due to the recognition by dairymen and the public that properly pasteurized milk is safe milk. There are many other diseases, such as typhoid, tuberculosis, diphtheria, scarlet fever, infantile paralysis, dysentery, septic sore throat and summer diarrhea of infants, which may be transmitted through raw milk. Undulant fever merely provides another argument to prove to doubters the great value of pasteurization in the prevention of disease.

We would do well to heed the advice given by Alice Evans, "For the protection of milk consumers the preventive measure is quite obviously the same as that practiced for the prevention of other infectious diseases that are spread by milk; namely, pasteurization. Those who are able to pay the price for certified milk may take raw milk with a reasonable degree of safety, *if the certification guarantees that the milk is from an abortion-free herd.* No milk other than that so certified, or pasteurized milk, can be considered safe, for the cattle disease is widespread everywhere in the United States. It is fortunate that the preventive measure of pasteurization is so easily available."

THIS MAP SHOWS THE DISTRIBUTION OF THE REPORTED CASES OF UNDULANT FEVER IN THE UNITED STATES TO JAN. 1, 1934.

ROBERT STERLING PALMER

Discusses a Common Ailment in A HEART



THE HEART is a marvelous organ. Not only is it supposed to be the source of that superhuman courage which distinguishes the heroes of grand romance; not only is it regarded as the seat of those tender emotions by which alone the poets live; the heart is in reality a marvel scientifically far more wonderful than it appears in song or story. We look at Niagara Falls and see the limitless flow of water which makes that mighty spectacle; we see the vast engines turned by its unfailing power. Yet unseen and unknown to most of us, all the hearts of the United States pump almost as much blood daily, 130 billion gallons. It has been estimated that all these hearts of ours together develop 70,000 horsepower, or enough energy to supply a large city, and that in a lifetime each heart completes 2,000 million operations while an automobile after 50,000 miles has done only a tenth as much.

What happens to these hearts? As a distinguished citizen of New York has said, "Let's look at the record." One heart in six fails. Disease of the heart and blood vessels leads all other causes of death and accounts for an untold proportion of sickness and disability. What can be done about it? The answer lies in individual preventive medicine, the common sense rules of living as outlined by the physician, and the prevention of disease with the aid of regular health examinations.

One sort of heart disease is that with which a few persons are born. It is fortunate that it is rare, since little is known about its causes and little can be done to prevent it. As far as is known, it tends to appear in certain families, although the tendency is not a strong one. Injury or emotional shock to the mother before giving birth to her child is not a cause. While as yet nothing can be done to anticipate or pre-

WE LOOK AT NIAGARA FALLS AND SEE ITS LIMITLESS FLOW OF WATER; YET UNSEEN AND UNKNOWN TO MOST OF US, ALL THE HEARTS OF THE UNITED STATES PUMP ALMOST AS MUCH BLOOD DAILY, 130 BILLION GALLONS.

TO HEART TALK

vent this type of heart disease, in some cases those suffering from it may enjoy long and successful lives by careful living. Such a person was Henry Gilbert, the distinguished composer of American music, who had a severe form of this type of heart disease yet in spite of it lived to almost 60 years and enjoyed a full and useful life.

Prevention is most successful in heart disease caused by infections or germs, but this prevention must begin early. How does your child look? Is his color ruddy and glowing? Are his bones well covered with flesh? Pale, thin children may be subject to rheumatism, which is an extremely common cause of heart trouble. Early symptoms are frequent sore throats, growing pains and irritability. If marked nervousness appears causing the child to drop his knife or fork at the table, or if he has swollen, red and painful joints, he is in immediate danger. If you want to insure a healthy heart for your boy or girl, be sure that he or she is well nourished, gets plenty of rest both during the day and at night and has ample outdoor air and sunshine. Take the child regularly to your family physician for examination.

Rheumatic infection causes most of the heart disease of children and young adults. At somewhat older ages a not uncommon cause of heart disease is syphilis. This disease is usually spread by sexual or other intimate contact with an infected person, although rarely it may be acquired in other ways. Once the germs gain entrance to the body they spread widely. The heart is one of the places they are liable to attack, especially one of the large blood vessels leading from the heart. The valve is deformed, and the heart muscle is injured. Because this attack is slow and silent, there may be few complaints to give the warning until the damage is done. The presence or absence of this disease, however, may be shown by a blood test. When you have your health examination, be sure that your blood is tested. Early recognition of this condition prevents much trouble.

The commonest heart trouble of the middle years and later is not infectious but degenerative, and it is related to hardening of the arteries and high blood pressure, those ghosts of ill health about which there is so much conversation and so little action. You are better off if you say and do nothing about either of them unless your doctor advises you of their presence or unless you know that your parents or grandparents were subject to these diseases. If they occur often in your family tree, be sure you are not one of the fat ladies who spends her spare pennies on whipped cream laden islands floating in chocolate syrup, or one of the roundish gentlemen who uses the limit of his expense account on hearty breakfasts and big dinners. Overweight and a familial tendency to heart trouble form a dangerous combination which is made even more serious if the victim also happens to be the irritable, worried, fretful sort, constantly struggling, always dissatisfied and always overambitious.

Your family history, your weight and your nervous habits are only three of many points which your doctor considers at a health examination. He will also want to know about such simple things as your hours of sleep and of work, the regularity of your meals, yearly vacations, monthly, weekly and daily rest, and the kinds and quantity of exercise and recreation. He can then judge the degree of intelligence applied to your daily living. The doctor also will search for functional defects by asking for the presence or absence of various symptoms which may indicate changes in the heart and blood vessels or other organs of the body. From his examination he may or may not find evidence of some changes already present. Of the greatest importance, however, in preventing the heart trouble of middle age is the correction of unhealthful habits of living, and to this end the physician gives instruction in personal hygiene. The prescription may be much the same for most persons. More often than not it will be education in health consciousness.

Good health and the prevention of degenerative disease of the heart and blood vessels mean regularity, balance and reserve strength. The greatest enemy of the heart is fatigue. Its strongest ally is eight hours of sound sleep a night, with twenty minutes of rest and relaxation during the day. The rhythm of a healthy man's waking life alternates between eight, or not more than nine, hours of work, and play which includes diverting interests and exercise. Concentrated week-end exercise with overeating and overdrinking is worse than none. Three equal periods of competitive sport each week and setting up exercises of from ten to fifteen minutes with forty minutes of walking in the open air each day afford the best combination. The healthy man's philosophy of living allows him to accept whatever comes with good humored fatalism. Such a man may be recognized by his erect posture, his unlined face, his good humor and tolerance, and above all by his enjoyment, zest and appetite for life.

Preventable Diseases in

Photos by Brown Brothers

COL. SAMUEL WASHINGTON, BROTHER OF GEORGE, WAS THE SON OF AUGUSTINE WASHINGTON AND HIS SECOND WIFE, MARY BALL. HIS DEATH OCCURRED AT THE AGE OF 47.

THE DESCENDANTS of John Washington, an English gentleman who came to Virginia in 1657, were prominent for many years in the affairs of the colony and in the political and social life of that new republic which the most eminent of the Washingtons helped to establish. They were not, however, distinguished by robust health, for many members of the family died young and numerous others were afflicted with diseases now generally looked on as unnecessary and preventable.

Of the immediate family of John Washington, little is known except that he had two sons, Lawrence and John, the former being the grandfather of George Washington. Lawrence died at the untimely age of 37, leaving two sons, Lawrence and Augustine, whose days on their broad lands beside the Rappahannock were also comparatively short. Augustine, the father of the future President, lived to be only 48, dying in 1743 of an acute respiratory disease, the exact nature of which is unknown.

Augustine Washington was twice married. By his first wife, Jane Butler, deceased in 1726, he had four children, two of whom died in infancy. By his second wife, Mary Ball, he had six children, of whom George, born in 1732, was the eldest. The youngest, Mildred, died in infancy, but all the others survived to adult estate although none reached the proverbial three score years and ten. One brother of George, Samuel, died at the age of 47, and another, John Augustine, was only 52 at the time of his decease.

Judged by modern standards, George Washington began life with a poor heredity. Although when he was in his prime he was more than 6 feet tall with a good physique and great physical strength, he suffered from many ailments during the 67 years of his adventurous life. In his early career he lived a rugged outdoor existence, but for many years after reaching the age of 21, he was exposed to the continuous hardships of numerous military campaigns.

DEPRIVED of his father at the age of 11, George Washington went to live with his half-brother Lawrence on the magnificent estate that was afterward known as Mount Vernon. Lawrence had married Anne Fairfax, daughter of a wealthy landowner. They had four children, of whom three died in infancy and one in early childhood. At the beginning of the eighteenth century, infant and child mortality was distressingly high even among the landed gentry, and the family of Lawrence Washington did not prove an exception.

Lawrence, who had campaigned with Admiral Vernon in the West Indies, began to show signs of a pulmonary disorder in 1751. His doctors ordered a voyage to the Barbadoes, so that he might have the supposed benefits of the semitropical climate. George accompanied his brother to the Barbadoes and shortly after reaching this languorous island contracted smallpox, with which, he wrote, he was "strongly afflicted." The disease lasted only three weeks, but as usual it left pock marks. In later life, Washington was a staunch advocate of the process of inoculation as a preventive of this disease and insisted that his wife should be inoculated in 1776 and that the measure should be applied to the troops of his army. Vaccination against smallpox was not actually perfected until after 1800, when inoculation with cowpox according to the method

the Washington Family

discovered by Dr. Edward Jenner in 1796 replaced the older procedure of inoculation with smallpox itself.

In 1752 Lawrence Washington returned from the West Indies to Mount Vernon, where he died of tuberculosis at the age of 34. A nephew, George Augustine, likewise succumbed to this disease; and in 1758 George Washington was convinced that he too was to be a victim of it, for in that year he displayed symptoms of pulmonary disease. On his return from the Barbadoes seven years earlier, he had nearly lost his life from a severe attack of pleurisy; and in 1757 while he was on General Braddock's staff, he had suffered from a fever. In the following year, during his military duties in defending the Virginia frontier, Washington contracted dysentery, or "bloody flux," which weakened his system.

APPARENTLY Colonel Washington recovered from these various maladies, for in 1759 he married a young and wealthy widow, Martha Custis, daughter of Colonel Dandridge. Martha had espoused Daniel Parke Custis in 1749 at the age of 17. Four children who were born to the union were subject to the high mortality of the period, for two died in infancy and one of the survivors, Martha, called Little Patsy, lived to be only 16. Her death in 1773 has been attributed by some writers to consumption, although she also suffered from epilepsy. Daniel Parke Custis died in 1757, at the age of 45, of what was called bilious fever but may have been typhoid.

Malaria was another disease that frequently plagued George Washington. George had inherited from his brother the beautiful estate on the banks of the Potomac, but it was in a malarious district, replete with Anopheles mosquitoes, which carry malaria. In 1761 Washington was laid low with this disease, which recurred in later years, particularly in 1768 and 1769, and again in 1786 when he suffered from severe paroxysms of the malady. His physician, Dr. Craik, prescribed cinchona, or Jesuit's bark, now commonly known by its derivative, quinine. When Washington lived in Philadelphia in 1793, there occurred a great epidemic of another mosquito-borne disease, the dreaded yellow fever, but the President was fortunate enough to escape it.

George and Martha Washington had no children. When Washington's stepson, George Parke Custis, died in 1781 of dysentery, or

By JAMES A. TOBEY

MARY BALL WASHINGTON, MOTHER OF THE FIRST PRESIDENT, DIED IN 1789 AT THE AGE OF 82, A VICTIM OF CANCER OF THE BREAST, WHICH IS SO OFTEN CURABLE TODAY.

"camp fever," contracted while serving as a revolutionary soldier, he left four small children; the two youngest were adopted by the Washingtons. Nellie Custis was later one of the reigning belles of the period, and George Washington Custis became a well known author. His daughter married Robert E. Lee, the confederate general.

IN 1787 George Washington suffered from rheumatism; and shortly after assuming the Presidency in 1789, he was stricken with a carbuncle on the hip, which was erroneously diagnosed as anthrax, a severe and frequently fatal disease. In October of that year the President went to Boston, where he contracted a serious cold. An epidemic of respiratory diseases which took place about that time was generally known as Washington's influenza. This attack

was not as severe as another in 1790, which ended in pneumonia and brought Washington close to the door of death.

In 1789, President Washington's mother, Mary, died at the advanced age of 82. For several years Mary Washington had been troubled with a malignant disease, cancer of the breast, which had resisted all treatment. It is known today that early diagnosis and prompt surgical care will usually prevent deaths from this cause, but in Washington's day this fact was seldom recognized. Mary Washington was only one of many famous women, including the Empress Theodora, Queen Anne of Austria, and two of the sisters of Napoleon, who were victims of this malady which is so often curable today.

After his retirement from the Presidency, in 1797, Washington lived at Mount Vernon, where in the following year he wrote to a friend: "Debilitated health, occasioned by a fever . . . has rendered writing irksome."

At this time he possessed a complete set of false teeth, prepared by Dr. John Greenwood and carved from hippopotamus teeth set on a gold base. At various times in his life, Washington had had tooth troubles; and it is said that when he crossed the Delaware, he wore an uncomfortable dental plate made by Paul Revere.

NELLIE CUSTIS, DAUGHTER OF GEORGE WASHINGTON'S STEPSON, WAS ADOPTED BY GEORGE AND MARTHA WASHINGTON. SHE LATER BECAME A REIGNING BELLE OF THE PERIOD.

THE last illness of Washington, which occurred in 1799, has been described by many writers, who base their accounts on the report given rather fully by Washington's secretary, Tobias Lear. This report is published in its entirety as an appendix to Jared Sparks' celebrated "Life of Washington," first issued in 1834.

Dec. 13, 1799, Washington went out in cold, wet, raw weather to visit his various farms. He returned wet and fatigued; but without changing his clothes, he sat down to a waiting dinner. A cold developed, accompanied by sore throat and hoarseness, and this condition became worse on the next day when he again went out to supervise the cutting of some trees. On the following day, Washington awoke early with a severe chill, breathed with difficulty and could hardly speak.

The overseer of the estate was sent for in order to apply the favorite remedy of the times, bleeding. Half a pint of blood was taken; but since no improvement was shown, Dr. Craik was summoned. The physician promptly bled the patient again, applied blisters and sent for two more doctors. Pending their arrival, more blood was removed. Within forty-eight hours of the onset of the malady, however, the distinguished patient was dead.

The cause of death was given as "cynanche trachealis," or inflammation of the larynx. Dr. Walter A. Wells, who has made a careful study of the medical aspects of the case, believes that the actual cause was a bacterial infection which resulted in inflammatory swelling of the larynx, or windpipe, so that there was air starvation. This medical authority rules out diphtheria, quinsy and pneumonia as improbable, although each of these conditions has been ascribed by various writers as the real cause of the death of Washington. The treatment given by the medical attendants is generally considered to have been consistent with the best scientific practice of the times, although if modern surgery had been available, the patient's life might have been saved.

Martha Washington survived her husband until May 22, 1802. Seventeen days before that date, she had been stricken with a fever, characterized by her biographers as a malignant bilious fever. This disease, whatever may have been its true nature, caused the death of Washington's lifelong consort in her seventieth year. It is interesting to note that Abigail Adams, the wife of Washington's successor, died of typhoid in 1818 in her seventy-fourth year.

THIS account of the numerous illnesses of George Washington and of the other members of his family offers hygienic lessons of considerable significance. If Washington and his relatives had lived today, it is reasonable to

assume that many of the maladies from which they suffered would have been prevented and that many of the untimely deaths, especially among the infants and children of the family, would have been postponed. Vaccination against smallpox, unknown in Washington's day, would have protected him and his entire army against the ravages of this scourge. Malaria, typhoid and dysentery would have been eradicated by effective sanitary measures, and tuberculosis would have been prevented by attention to personal hygiene and freedom from contact with known cases. Probably even the poor teeth of the President might have been avoided by means of a proper diet of protective foods, such as milk, fruits and vegetables, and by the early application of skilful preventive dentistry.

Times have changed, of course, since the generation in which George Washington lived. Sanitary science and the art of preventive medicine have made tremendous progress, so that most of the diseases which were rife in the eighteenth century have yielded to the conquest of man. Education in the principles and practice of personal hygiene is likewise more or less ubiquitous, but man knows vastly more about human health than he applies. This fact, based on the folly and indifference of mankind, accounts in considerable degree for the continued prevalence of many preventable diseases.

HEALTHGRAMS ✣ from Articles in This Issue

¶The conditions of housing under which the lower economic third of the population is obliged to live are closely correlated with the lack of physical soundness, mental vigor and moral tone of the occupants of such housing.
See page 122

¶The greatest enemy of the heart is fatigue. Its strongest ally is eight hours of sound sleep a night, with twenty minutes of rest and relaxation during the day. *See page 116*

¶Gonorrheal infection of the eyes of the newborn, or ophthalmia neonatorum, is still responsible for approximately 20 per cent of all blindness in the United States. *See page 148*

¶Education in the principles and practice of personal hygiene is more or less ubiquitous, but man knows vastly more about human health than he applies. *See page 118*

¶One of our greatest surprises in showing health films throughout the state has been the many requests for showings from luncheon clubs made up entirely of men. *See page 138*

¶Do not believe in the false statement, "once a sinus case, always a sinus case," for each year the percentage of cures is increasing.
See page 152

¶The moral code of civilized man, as I understand it, reads thus: As between man and the animals, man comes first. *See page 126*

¶Even though food may seem acid to the taste, this does not indicate what its effect will be in the body. *See page 160*

¶Poor light, bad smoky air, especially in cafés, and incorrect distances between player and music rack usually account for the optical disorders of orchestral executants. *See page 132*

¶Most babies come into the world structurally and mechanically perfect; but before they are 5 years old, children often show defects of structure which are not due to disease.
See page 137

¶Three hundred years ago Boston school boys attended school six days a week for almost the entire year. *See page 156*

¶Every infant should have at least an hour daily when he may roll and kick without the hindrance of any clothing. *See page 136*

¶The thorough brushing of garments which are suspected of harboring moths is as effective as chasing the male moth on the wing is futile.
See page 141

¶It must constantly be borne in mind that the teeth have a significance far beyond themselves in their bearing on general health.
See page 144

¶Clothes are such subtle indications of a child's inner life that I feel we should take them more seriously than we do. *See page 130*

¶All statements that the food value of milk is appreciably lessened by pasteurization have no basis in fact. *See page 112*

¶The American Medical Association broadcasts weekly over the networks of the National Broadcasting Company and the Columbia Broadcasting System. *See page 180*

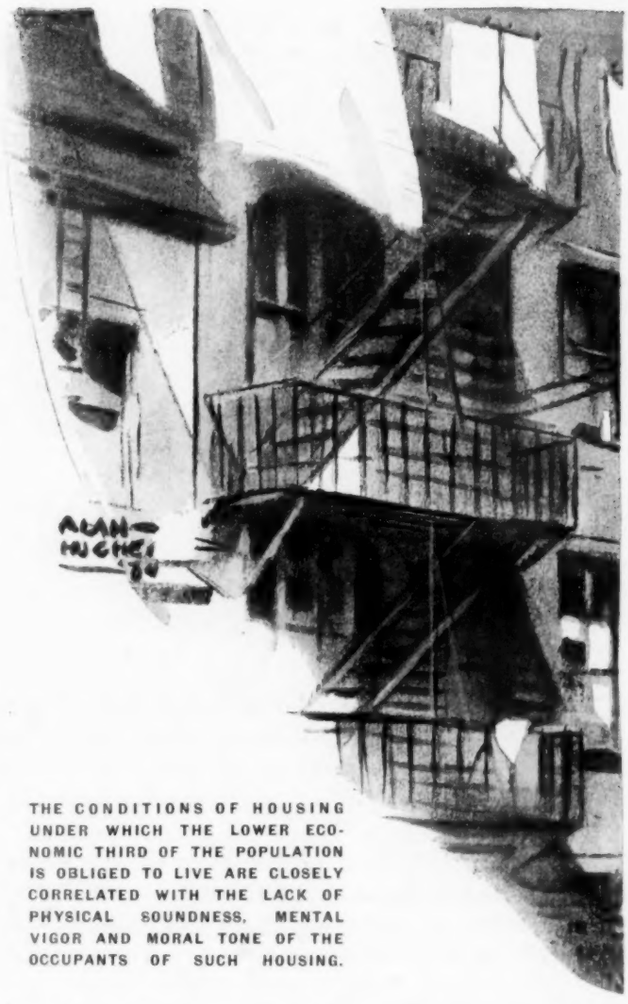
The Challenge of the Slums

THE GREAT mass of the people of the United States occupy dwellings which are a constant menace to their physical, mental and moral health. From Maine to California and from Canada to the Gulf, the conditions of housing under which the lower economic third of the population is obliged to live are closely correlated with the lack of physical soundness, mental vigor and moral tone of the occupants of such housing.

Many factors are to be considered in the association of housing and disease. Families crowded together in dark, ill smelling apartments, dilapidated hovels and tenements, with no bathtubs and with common toilets in the hall or back yard, breed disease far more rapidly than it can be wiped out. Social workers of the Henry Street Visiting Nurse Service in New York City, who come into intimate contact with problems arising out of this association of housing and ill health, have found that illness prevails in a huge percentage of the families living in the congested slum areas.

Millions of dollars are spent annually in preventive and curative measures. Health services are concentrated where the housing congestion is thickest; the medical and scientific worlds utilize their resources to wipe out disease. But surprising delay has marked America's efforts to attack the great causal factor of bad housing.

"Health," declared Dr. M. J. Rosenau at President Hoover's Conference on Home Building and Home Ownership, "may be undermined and resistance broken by the unhygienic and insanitary conditions of poor housing. Cold, gloomy, damp and cheerless rooms, lack of opportunity to take advantage of the health giving qualities of sunshine, the bad air of poor ventilation, and the irritating dust of substandard homes may depress vitality and tone, and materially affect efficiency."



THE CONDITIONS OF HOUSING UNDER WHICH THE LOWER ECONOMIC THIRD OF THE POPULATION IS OBLIGED TO LIVE ARE CLOSELY CORRELATED WITH THE LACK OF PHYSICAL SOUNDNESS, MENTAL VIGOR AND MORAL TONE OF THE OCCUPANTS OF SUCH HOUSING.

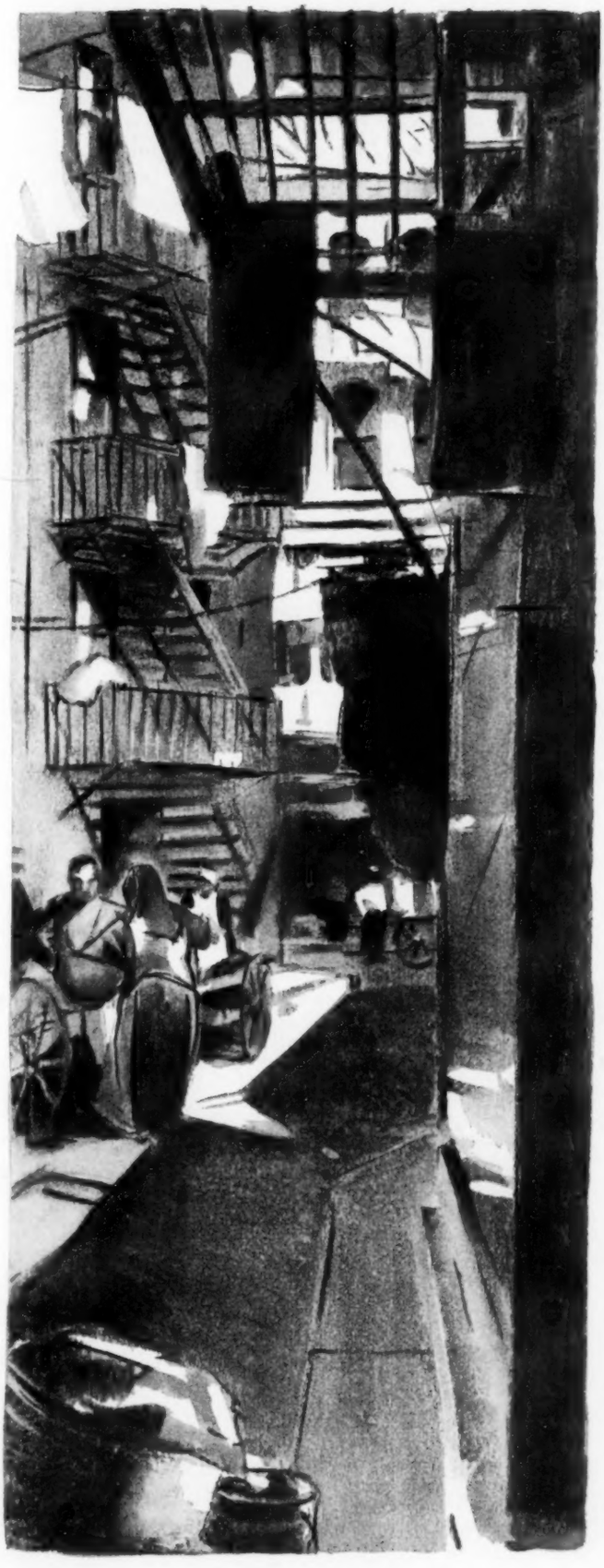
IN 1925 the Federal Children's Bureau made an exhaustive study of the causal factors in infant mortality. It examined conditions in eight cities where widely different housing conditions obtained. It discovered that, where families lived less than one person in a room, the infant death rate was 52.1 per thousand, as compared with 94.9 per thousand in families in which the average was between one and two persons to a room, and 135.7 per thousand in families in which the average rose to two or more persons to a room.

The surveys of departments of health in key cities reveal that slum districts are conducive to high sickness rates among children. In general, they have little reserve strength and resistance against the various illnesses and communicable diseases to which their home and social environment exposes them. Contagion is difficult to control when isolation is impossible and the ordinary facilities for care are unavailable.

In describing the living conditions of one slum block in New York City housing more than 2,700 persons, a health worker reports:

> The hallways are dark and the stairs are dangerous. The toilets are unlocked—the water is running continually in some of them and they are in filthy condition. Pitiful efforts are made by families with good standards for half way decent conditions in these community toilets, but they finally abandon the cruelly unequal struggle with the indifference of the landlord and the acceptance and inertia of their neighbors.
>
> The health problems in this block of dilapidated tenements are numerous and the amount of sickness reported is naturally very great, especially in the winter time when overcrowding is more pronounced than during the summer. The backrooms of most apartments are uninhabitable in winter, thus necessitating from four to ten people sleeping in two rooms. The number of cases of pneumonia, bronchitis, colds and

By HELEN ALFRED



malnutrition keep the nurses so busy that they have little time for the more progressive types of health teaching.

The houses are infested with bed bugs, mice and cockroaches. Even if a family has high standards of cleanliness, vermin come in through the holes in the walls, floors and through the antiquated plumbing.

The reader must interpolate the health situations which lie back of these typical pictures of housing conditions in low rent accommodations throughout the country. A recent survey by the U. S. Department of Commerce showed a shortage of 5 million habitable dwelling units. Sixteen per cent of the dwellings surveyed in sixty-four key cities were in a crowded condition, "or worse." Incomplete returns showed 32,422 houses of the total area as "unfit for human habitation." More than 10 per cent of the units reported were without indoor running water, more than 20 per cent lacked private indoor toilets and more than 25 per cent had no bathtubs or showers.

FEW persons realize that substandard dwellings are not only a menace to the people who inhabit them but also a danger to the entire community. Recently in New York City a slum area, which still exists within a block of Wall Street, was partially rehabilitated by the financial leaders doing business there when it was brought to their attention that the people who swept out their offices lived in an area that bred tuberculosis and other communicable diseases. They realized the danger of substandard housing to their own existence. For this reason, for the savings in terms of dollars and cents, as well as to prevent human suffering, the more fortunate in this country should spread the campaign for the abolition of the slums. The reduction of disease and the prolongation of life would yield many times the cost of the eradication of the slums.

Lord Noel-Buxton, in a recent discussion in the House of Lords, asked, "Is it sound economic policy to equip and maintain, at the cost of millions of the taxpayers' money, sanitoria for the tubercular, while we guard intact the very preserve of this disease, which can breed in a week more tuberculosis than all sanitoria can cure in a year?" Density of population amid substandard housing conditions bears a constant relationship to the disease, the mortality increasing where the human congestion is most dense. The lack of light, air and proper ventilation in the dwellings, combined with insufficient or improper food, induce the conditions under which tubercular diseases make their greatest ravages. There is evidence tending to indicate that although the proportion of deaths from tuberculosis has decreased, the prevalence of this disease is increasing.

The child is always the first and easiest victim of a bad home and social environment. Plastic-minded and sensitive to impressions during

those early years spent in ugly physical surroundings, he forms attitudes and habits which are usually modified only with the greatest difficulty if they are ever modified at all.

Substandard living conditions weaken all the tissues in the body and render the victim more susceptible to mental and physical disease. The lack of basic facilities for decent living, insufficient opportunities for rest, relaxation and recreation, and the anxieties and conflicts due to overcrowding and poverty produce unhealthy states of mind, which in turn often produce functional disorders of the body.

"SMALL wonder that the incidence of mental diseases, crime, and juvenile delinquency is greater in the congested areas of our great cities and small towns," declares Dr. Frankwood E. Williams, former chairman of the National Committee on Mental Hygiene. It is known from surveys recently conducted in Chicago, Milwaukee, Toledo and other cities that mental cases and juvenile delinquency are at their highest in the slum districts, where as many as nine persons are often herded into two rooms.

The disappearance of the race-old refuge of one's own home, and such environmental factors as overcrowding and uncleanliness, in the opinion of Dr. Williams, produce in the mobile members of the family a feeling of insecurity, of "not belonging." Outside the home, this feeling of futility and frustration translates itself into an antisocial attitude that too often becomes dangerous to society.

Reporting on a recent survey of slum areas as breeding places of delinquency and crime, Langdon W. Post, tenement house commissioner of New York City, said, "Behind the Dillingers and the Diamonds, the Gerald Chapmans and Pretty Boy Floyds there stand the slums. Our report reveals these sections as initiating and fostering high rates of juvenile delinquency and the most vicious types of crime. Twice as many persons per thousand living in the slums are arrested for crimes, as in areas of standard housing."

Bad housing has been growing in the United States for many years, but the fact has only recently come to be recognized as a great social question affecting the health of millions of persons. During the present depression the housing of the lower income groups has emerged as a major problem, presenting a challenge probably as vital and important as public health itself. In every part of the country the people have become sharply conscious of the need of a planned and organized housing policy, as millions of families, other than those who normally reside in the slums, were forced to seek shelter in cast-off dwellings that hardly fulfilled the minimum requirements of health and sanitation. No decent homes were available to them at rents they could afford to pay.

In a recent article in *Collier's*, John T. Flynn pointed out that only 30 per cent of the population live in houses which were built directly for them or for their class; the other 70 per cent occupy left-over dwellings. That is, in the construction of homes for the one third of the population earning more than $2,500 a year, sufficient houses have been supplied. However, the lower economic two thirds of the people, those earning less than $2,500, have been sadly neglected.

It is for these two thirds of the people who find it impossible to provide decent homes for their families at low rents that demonstration programs of slum demolition have been begun. Actual construction has already been started by the federal government in cooperation with local authorities in various parts of the country.

The formation of the Housing Division of the Public Works Administration marked the opening of a new chapter in the history of health and housing in the United States. However, the battle is only begun. The problem of clearing the slums and making decent living conditions available to the people is a long range problem requiring long range plans that must go on through the years.

THE success or failure of this program depends alike on an actively organized public and the clear sightedness and unselfish spirit of civic leaders. The goal can be reached, if the facts are made known and if communities are aroused, helped and guided to grasp an opportunity such as this generation has never known before. National organizations associated with the National Public Housing Conference are pledged to this purpose.

"Unless housing meets all conditions prerequisite to the maintenance of public health, it cannot be considered successful," says Dr. M. J. Rosenau. "Good public health does not consist simply in avoiding disease but in maintaining the best qualities of physical soundness, mental vigor and moral tone, which are inherent in an hygienic and sanitary environment."

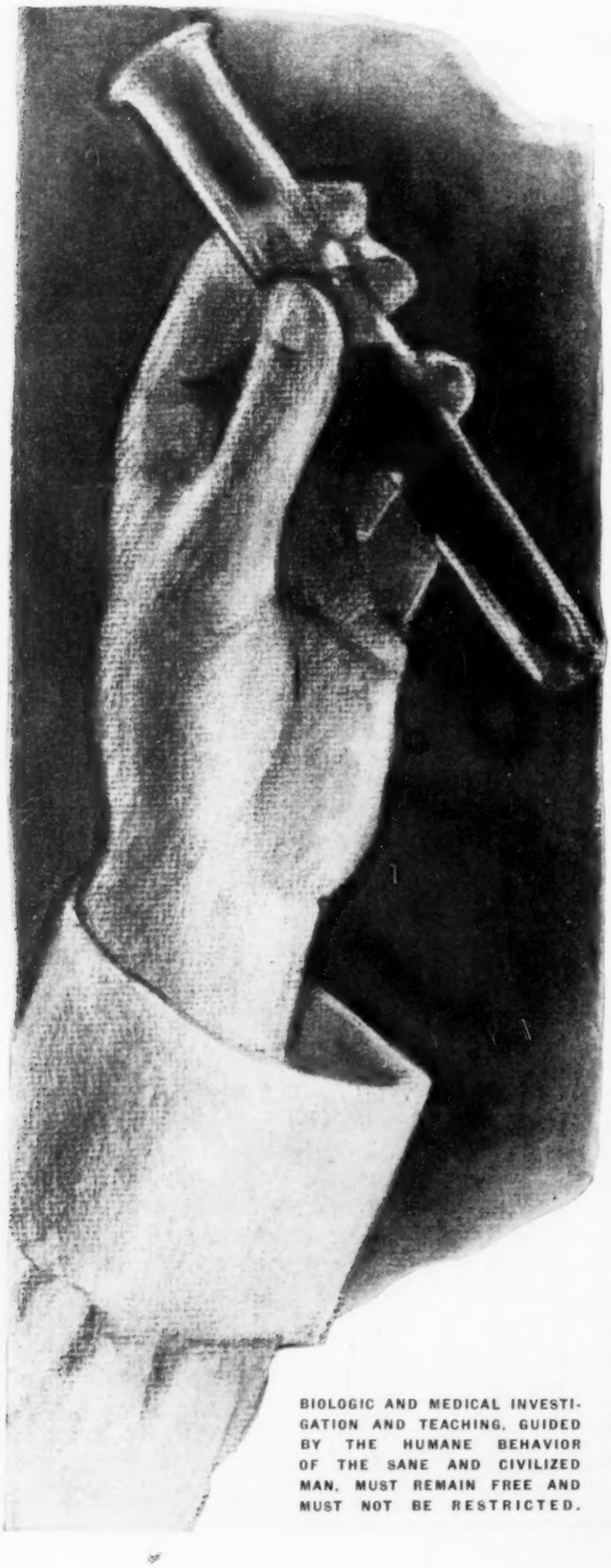
It does not take a great stretch of imagination to envision the benefits that will accrue to the great mass of the population with the elimination of substandard housing. Adults, youths and children will be transplanted from conditions of overcrowding and dilapidation into surroundings designed to build health and to encourage self respect and contentment.

The modern family units will be light and airy, affording maximum sunlight, space, fire protection and sanitation, and will be available at rents low enough to cover investments, but will provide profits to none. Gardens, parks, play areas and community activities will make human lives healthier and happier. Generations of families will be immeasurably brightened and made more compatible with the ideals and theories of American life.

SCIENCE AND HEALTH AND KEY TO THE CRIME WAVE

GOOD GOSH! HERE'S A MICROBE
HEALTH DEPT.
MILK INSPECTOR
QUARANTINE
MEASLES
AN OUNCE OF PREVENTION IS WORTH A POUND OF CURE!
I AIN'T SICK!
NO. AND WE VACCINATE SO YOU WON'T GET SICK!
AND WE CAN'T DO ANYTHING ABOUT IT UNTIL THEY PULL SOMETHING!
SHERIFFS POLICE PROSECUTING ATTORNEY AND COURTS.
CRIME EPIDEMIC
TO DR. BIERRING WITH BEST WISHES
Dinga

EXPERIMENTATION and MEDICINE



BIOLOGIC AND MEDICAL INVESTIGATION AND TEACHING, GUIDED BY THE HUMANE BEHAVIOR OF THE SANE AND CIVILIZED MAN, MUST REMAIN FREE AND MUST NOT BE RESTRICTED.

MANY causes have contributed to man's happy progress in understanding the workings of the human and animal body and the gradual conquest of human and animal diseases. The new discoveries in the basic sciences of chemistry and physics have given the biologic and medical investigator new methods of solving old problems such as kidney disease and the toxemias of pregnancy and have also provided new tools for penetrating further and further into the mysteries or the unknowns of life both in health and in disease. But without freedom in research, without the confidence in and the moral and financial support of medical and biologic investigation by governments, groups and individuals, the achievements in the understanding of man and in the conquest of disease would have been scant, indeed, despite the significant discoveries, the new ideas and the new tools furnished by the chemists and physicists. This is almost self evident.

Modern medical research costs much money, and the investigators must have freedom to work, to experiment, to try again and yet again under guidance of the moral code of civilization but unhampered by special philosophies, special superstitions or special prejudices. The moral code of civilized man, as I understand it, reads thus: As between man and the animals, man comes first. This is the law of life; but when man uses or destroys the animal for man's own protection, aid or other interests, such use or destruction must be done without cruelty. I regard kindness to all animals as one of the finest fruits of human development, especially when the emotion of kindness is tempered and directed by a profound understanding of the complexity, beauty and unity of all life—man, animal and plant.

All science is one, at least in the principle of the scientific method. Physics, chemistry and the technical arts have made marvelous advances by working with and by experimenting with all forms of matter and energy known to man in the universe, by putting new questions to old Mother Nature and seeking newer and better answers by newer and better experiments performed by means of newer and better tools. If the mineral pitchblend had been taboo to the chemists, the discovery of radium and the subsequent explosive evolution in chemistry and physics could not have been one of the great advances in our knowledge of the world during the last century. In the same way the biologic and medical investigator endeavors to use newer and better tools in clearing up the many

An Article in Which A. J. CARLSON Discusses

MAN'S DEBT to the ANIMAL WORLD

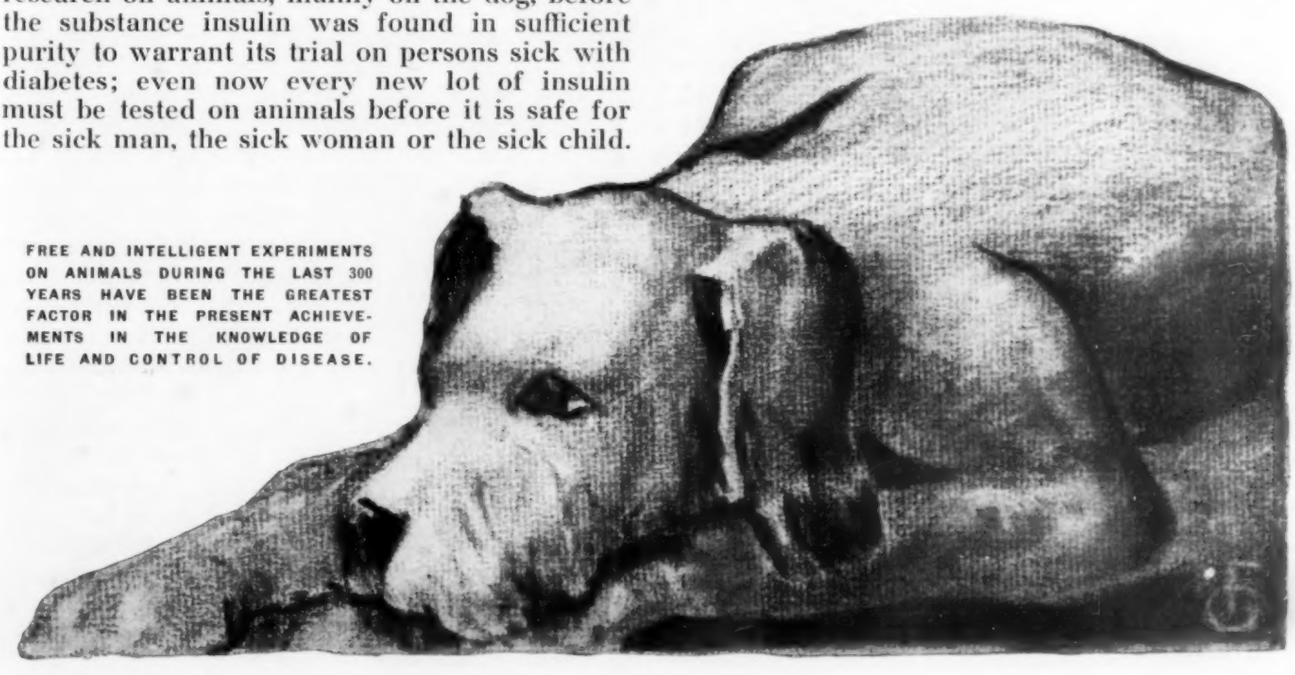
unknowns in living matter in health and disease, trying newer and better experiments on all forms of life. I shall discuss the importance of this experimentation to biology, to medicine and hence to mankind, past, present and future, by stating and illustrating five propositions.

FIRST, there is an essential unity of all life. Informed laymen are well aware that animals are built on the same plan as man; they have the same organs, worked by the same nervous and chemical machinery. They subsist essentially on the same kind of food and the same kind of air as man, and they are subjected to essentially the same kind of disorders as man. The causes and effects of disorders of the heart, the stomach, the lungs, the eyes, the nerves or the brain are essentially the same in animals and in man. When the experimental method was introduced in science, including the science of medicine, experiments on animals resulted in rapid progress of the understanding of the nervous and chemical machinery operating in the body in health and of the disturbances of this machinery that lead to disease. Thus, animal experimentation has played a great rôle in the development of knowledge of infections and their control, of anesthesias and their refinement, of disturbances in nutrition, of dietary deficiencies and of growth, and in the development of new and valuable drugs and their continued refinement.

There were more than thirty years of intensive research on animals, mainly on the dog, before the substance insulin was found in sufficient purity to warrant its trial on persons sick with diabetes; even now every new lot of insulin must be tested on animals before it is safe for the sick man, the sick woman or the sick child. Every informed layman now knows the value of insulin in diabetes. You need not take my word for it. Read history, and form your own judgment. I sincerely believe that if every man and woman in this country knew the inspiring story of the discovery of insulin, all voices would be raised in approbation of such fruitful biologic experimentation.

SECONDLY, free and intelligent experiments on animals during the last 300 years have been the greatest factor in the present achievements in knowledge of life and control of disease. It was not till the great William Harvey began to observe and experiment on animals that man started to understand the heart, the blood and the circulation. When cancer was discovered in animals and experimentally produced in animals, we began to make real progress in the understanding, if not in the control, of this malady. The lowly mouse, not to mention many other species, has served man well in research on cancer, but one cannot say today what animal will yield the hoped for answer to cancer prevention or cure. Animal experimentation has been a great factor also in giving better knowledge of anemia, digestive and kidney disorders, glandular disturbances, nervous diseases, and the control of hookworm, scurvy and other diseases.

I wish that every one might read the history of biology and medicine of the last 300 years and really be informed as to the facts and value



FREE AND INTELLIGENT EXPERIMENTS ON ANIMALS DURING THE LAST 300 YEARS HAVE BEEN THE GREATEST FACTOR IN THE PRESENT ACHIEVEMENTS IN THE KNOWLEDGE OF LIFE AND CONTROL OF DISEASE.

of animal experimentation as it is carried on at Harvard, at Yale, at Johns Hopkins, at Chicago, at the Rockefeller Institute, the Mayo Clinic or, in fact, at any first class university, medical school or hospital here or abroad. Would the commonwealth care to live under the health conditions and be treated for sickness by the empiric and often harmful methods that obtained before animal experimentation laid down the laws for personal and public health and hygiene that minimized the incidence of epidemics and made the physician a real diagnostician, surgeon and healer? Would the commonwealth care to be deprived for one day of the fruits of animal experimentations in the realm of health and disease of man as well as of animals?

In the third place, biologic experimentation is essential for the practical application of a great deal of present medical knowledge in the prevention or cure of disease. Animals produce antitoxins. They are essential in the discovery and standardizing of new remedies. They are necessary for the diagnosis of some forms of tuberculosis. They are of great service in some aspects of human pregnancy. The modern story of foods, nutrition and the known disorders of nutrition would be largely gaps and guesses, except for the services of the rat, the pigeon and the dog. In brief, we would be greatly hampered in applying the known facts to society, were society to stop the doctor and the biologist from the humane use of animals in the scientific service of man.

The fourth proposition is that animal experimentation seems essential for further progress in biology and medicine. Experimentation has certainly proved its value in the biology and medicine of yesterday and of today. What about tomorrow? Do we know it all? Or, if not, can we find the missing answers by intuition, inspiration or logic? I see no hope in that direction. These methods failed in the past, and I see no greater value for them in the future. After more than a third of a century's service in biology, it seems clear to me that intelligent and humane use of all species of animals will be necessary on the road to a fuller understanding and control of heredity, growth, immunity, and nervous, glandular and nutritional disorders.

Furthermore, the use of animals is of continuous and increasing importance in the training of the doctor and the biologist of the future. Unfortunately, parents do not seem to transmit their individually acquired knowledge and skill to their children. Each generation must learn for itself, mainly by the old, slow and painful method of trial and error. If the society of tomorrow needs the services of doctors and biologists, common sense seems to say that their training is a matter of importance, a training in nature as well as in books. Hence we need animals in the training of doctors and biologists; and animals can be so used, and are so used, without cruelty.

Finally, animal experimentation is humane. It has been argued by some that this use of animals is useless and cruel. As to the charge of uselessness, the answer is given by history. As to the charge of cruelty, I have a word to say as a man who has been engaged in animal experimentation for more than a third of a century and consequently should know something about it. Cruelty is the wanton or useless infliction of suffering on man or animals. I know the biologic and medical research laboratories in this country and abroad, and I can state as a fact that in animal experiments involving pain the same anesthetics are used as in surgical operations on man. Neither man nor the animal needs an anesthetic to stand a mosquito bite or the passing of the hypodermic needle through the skin. Moreover, an animal in distress usually cannot answer the questions put to him by the medical investigator. When animals under anesthesia are used in medical teaching, they are not allowed to come out of the anesthesia. Death by anesthesia is probably the least uncomfortable of all deaths. There is inflicted on animals more pain in one hunting, trapping and fishing season than in all the centuries of animal experimentation. The pain inflicted by the hunter, fisherman and trapper is not wanton, to be sure, and yet pain is inevitable. For what purpose? For the most part for the joy of the chase, the possession of furs, often to be used as ornaments, for food and for the joy of the strife, which causes pain and eventually death by suffocation or bleeding.

By common consent, we use animals for food, for clothing, for labor and for pleasure. How can it be wrong to use animals humanely to increase our understanding of life and our control of disease, both of which contribute to human happiness? We must retain the sense of proportion. Man survives only by destruction of plant and animal life for his food. Man's welfare demands either death control or birth control of the animal, but these must be carried out humanely. When the animal dies as a part of biologic and medical investigation, the death is humane. We cannot indict or convict of cruelty to animals our universities, medical schools and hospitals on any evidence so far brought forth.

Biologic and medical investigation and teaching, guided by the humane behavior of the sane and civilized man, must remain free and must not be restricted, lest a hundred years hence our descendants will foregather, not to celebrate another century of progress in biology and medicine but to condemn dreary decades of medical and biologic stagnation.

FEBRUARYS—
Past and Present

Century

"MY VALENTINE I PRAY THAT THOU WILT BE, NOT FOR A DAY, BUT FOR ETERNITY."

Century

ABRAHAM LINCOLN

1809-1865

"WITH MALICE TOWARD NONE; WITH CHARITY FOR ALL," BY WORD AND DEED THE GREAT EMANCIPATOR LEFT HIS INDELIBLE STAMP ON THE NATION.

GEORGE WASHINGTON

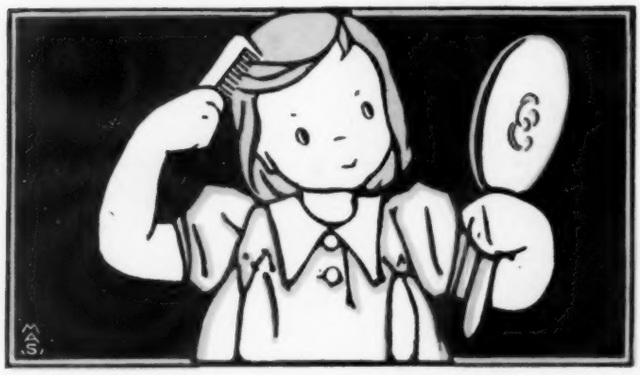
1732-1799

THE LIFE RULE OF AMERICA'S FIRST PRESIDENT IS FOUND IN HIS SCHOOL COPY BOOK: "LABOUR TO KEEP ALIVE IN YOUR BREAST THAT LITTLE SPARK OF CELESTIAL FIRE, — CONSCIENCE."

Washington Bicentennial Commission

ACCORDING TO TRADITION THIS, WASHINGTON'S BOYHOOD HOME NEAR FREDERICKSBURG, VA., IS THE SCENE OF THE FAMOUS CHERRY TREE EPISODE.

Ewing Galloway



SHE IS VERY

WHAT WOMAN who grew up in those moral days of "pretty is as pretty does" was not startled to find, on achieving the ripe age of 18, that she had a countenance worth considering on its own merits? Parents used to think it positively wicked to refer to a child's appearance unless it was to run it down. The result was that most of us learned with a shock that our personal looks and what we did with them were not to be ignored as beneath our notice but were rather a grave responsibility. There is an extraordinary difference between the sense of guilt we adults had when we looked in the mirror and found anything in our faces pleasing and the sense of simple and untroubled interest our children have at the same prospect.

Although I am not one to scoff at the sturdy training which most persons over 30 have had and although I am convinced it had many virtues that have been unwisely discarded by the modernist, I still do believe that a less puritanical attitude to one's personal appearance is of great value. The time has gone when it is either practical or useful for parents to spell in front of their daughters, "I know she is very p-r-e-t-t-y," as though it were an indecency which the daughter must never fully understand. Far better that they acknowledge her good looks with pleasure.

In the first place, if a child is handsome, he is bound to discover the fact sooner or later, and the discovery will assume an importance all the more out of proportion because it has the added excitement of having been kept a secret. How much more natural simply to have acknowledged the fact to him and pointed out that it is no particular virtue of his own. The harm which his parents can do him by denying it may not only give him a distorted idea of the value of good looks but may also disturb his belief in his own judgment. Why not say quite frankly to him, "Yes, you have nice eyes," or to her, "Your hair has a lovely natural wave and that is one of the luckiest things which can happen to a girl." Surely a child has a right to enjoy the good things of life, and any nice feature is not the least of them.

In the second place, if a child is considered ugly, his sense of hopelessness and inferiority is enhanced by never having been taught how to make the best of his looks. I can well remember my own sense of desperation when I was little and a pair of gold spectacles was set irrevocably on my turned up nose. It seemed to me an unbearable affliction, and the fact that I could detect a certain pity in the voices of adults when they talked of what a "good little girl" I was and carefully avoided all reference to my appearance filled me with a black despair. However, if only some one had shown me how to make the best of glasses and hair and face, I am sure my misery could have been turned into a perfectly cheerful acceptance of the way I looked, and I should have had weapons with which to improve my appearance. Nor, I know, was mine a unique experience. Many of my contemporaries suffered because they looked "different" or ugly, and many children still do suffer even though our approach to personal appearance is more enlightened than it used to be.

THERE persists, also, a curious conviction that it is effeminate and peculiar for an American boy to take any interest in his appearance. Yet, it seems to me, not only would it be perfectly manly for our sons to learn the virtues of cleanliness plus one or two simple rules of dress but it would also inculcate in them a certain training which would make them better husbands for American women, who are, after all, exceedingly fastidious. The success or failure of teaching either boys or girls to consider their appearance and their clothes depends entirely, of course, on the approach of the parents. I acknowledge immediately that any overaccenting of the subject turns a child into a dreary little prig. I am sure, however, that if children are taught simply that their faces and figures are not entirely God-given but can be enhanced or spoiled by the care taken of them, they will come to a much more just estimate of the importance of putting their best foot forward.

I have begun by trying to inculcate in my own boy and girl, who are just average children, an enjoyment of cleanliness. Bobbie, who is 11, should gratify the most ardent believer in the masculinity of sheer dirt for he has always eschewed water as though it were poison. A compromise has gradually been effected between us, however, which has not robbed him of his sense of hardihood. I have made it clear that dirt and old clothes are legitimate when he is outdoors playing, but I have pointed out that his father and I do not offend him by coming to the table without washing and no more shall he if he is to be part of the family

P-R-E-T-T-Y

group. In other words, soap and water have been pointed out as adult instruments used to make oneself agreeable rather than as special tortures for children. Bobbie is finally becoming convinced that it is not only commendable but certainly more grown up and perhaps even pleasanter to wash.

It was the same with teaching him and Alice to be tidy. The moment they felt that there was a stigma of babyhood attached to slovenliness, they took a new interest in being well groomed. This fundamental assumption was a great help, but there was still much that I personally could do to encourage them along this line. I noticed, for example, that it made little difference to them whether they had new clothes or things which were hand-me-downs from older relations. What did matter was whether these clothes really fitted them. As a woman, I dislike intensely having a skirt which is too long or shoulders which are too narrow, yet I had never realized how important such details could be to children until one day when Alice refused to put on a new dress I had bought for her. I scolded and cajoled but all to no avail. She was adamant. Her reason was that she "hated it 'cause it didn't feel comfortable."

I finally persuaded her to put it on so that I might look at it more carefully. She was quite right. I had bought a big size so that it would last longer with her fast growing legs, and the dress was just wrong in length and in the sleeves. It was a simple matter to shorten the skirt and fit the sleeves properly; but it metamorphosed the dress, and immediately the child was happy in it.

THE same was true with Bobbie. He had some suits which had been outgrown by his cousin. They were in splendid condition; but as long as they did not quite fit, his sense of indifference about his appearance was marked. However, the moment the suits were made to look as though they were really meant for him, not only was there an improvement in his tidiness and general good looks but he began to take a just pride in his clothes. He began to get his first pleasure in feeling well dressed and at his best, and the moment children sense the well being which comes with being nicely and carefully dressed, they are already well on the road toward cleanliness, tidiness and smartness.

Another thing which, in my opinion, children can easily be taught is the range of colors which particularly suit them. It is neither elaborate nor expensive, for example, to see to it that a sallow, sandy haired boy is not dressed in tans and beiges. So many mothers not only ignore color when they get their child's clothes but miss the splendid opportunity of teaching the child himself just why some colors suit him and why some destroy all his qualities. I do not think such elementary instruction can possibly make the child self conscious or priggish. On the contrary, I feel that he has a right to know what makes him look sturdy and healthy and smartest, and if it is taught to him casually, he will take it in his stride and make the most of himself.

CLOTHES are such subtle indications of a child's inner life that I feel we should take them far more seriously than we do. I have watched my own children with interest as they have developed "dressing up" to whatever part they thought they should be playing.

I remember a phase through which Bobbie went at the age of 6 when he was feeling insecure and frightened at school. It was a situation about which I knew nothing until one day I noticed him strutting about in a policeman's hat with a stick in his hand for a club. I should not have paid much attention if he had been part of a play or a group because both my children have always had amateur theatricals as one of their favorite games. At those times, however, they quite frankly wore costumes, and Bobbie's policeman's cap was no costume but a definite part of his dress which he wanted to keep on all the time. It was this evidence that he was protesting his courage and manhood which made me suspect him of being frightened of something. So the policeman's cap turned out to be an important clue to the child's distress of mind.

A child should be taught early to make the best of his physical equipment just as he is taught to have good manners because, and it is a really big because, it is pleasanter for other people. Then vanity and conceit and the vices which our parents despised need not enter into the question and, at the same time, perhaps we shall have contributed to a training which has made children more self reliant, more attractive to their fellow men and, best of all, more secure in their own right to look their best.

By SOPHIA YARNALL

PHYSICAL AILMENTS: The Second of Two Articles on

THE FIRST article of this series presented in detail the various and sundry psychic ailments of musical students and professional musicians. Although the line of demarcation is not always a sharp one, this paper will be more specifically devoted to purely physical ills, together with their causes and symptoms.

Violinists, 'cellists, pianists, flute players and drummers are from time to time tormented by singular disorders known as occupational cramps. They viciously attack the musical apparatus, twisting the fingers of budding Paderewskis and oppressing the shoulders and arms of potential Kreislers. Significantly they assault the professional musician more often than the amateur. The chap who makes music his avocation rather than a means to his daily bread rarely suffers from occupational cramps. His mind and muscles are free from extraordinary strain. The professional musician, on the other hand, often sees his career interrupted or ruined by occupational disease.

It should be noted that the ordinary muscular movements of normal capacity used since birth do not lead to these cramps. During recess a violinist or pianist may play tennis or row a boat without annoying his musical musculature. Occupational cramps come solely from the unusual stretching, spreading and bending of arms and hands incident to the adoration of the great god Technic.

SEVERE SHOCK MAY BRING ON A STUBBORN OCCUPATIONAL NEUROSIS. A BRILLIANT WOMAN PIANIST SUFFERED FROM MUSCULAR PAROXYSMS BECAUSE OF A BROKEN ENGAGEMENT.

The pain usually assails the subject during hours of practice or performance; and once it has visited him, almost invariably the malady lingers on. Dr. Kurt Singer in his "Diseases of the Musical Profession," a volume from which much of this material is drawn, investigates carefully the causes of the cramp epidemic. He concludes definitely that these cramps cannot arise from any inflammation of the nerves. Mild recreation in the form of walking or playing an outdoor game often instantly relieves the tension. Furthermore, the nerves adjacent to the locus of the cramp are not in the least sensitive to touch. Good old nature, if left alone, is expert at curing the simple local inflammations of the musician. The student violinist, for instance, is at first liable to suffer severe pains in the four active finger tips of the left hand; but eventually he develops a hard corn at the end of each digit.

DR. SINGER arrives at the fundamental conclusion that the base of these occupational cramps must be in the brain. The pain and fatigue of practice do not result in simple inflammation of the nerves. They are persistent and lasting, and they are usually coupled with serious symptoms of heaviness and exhaustion. The tiring musculature seems to breed an active distaste for playing, if not for music in general. The ultimate effect on performance can be readily imagined.

Let us observe a few of the salient characteristics of this great musical scourge. It is remarkable that most musicians who suffer from playing cramps are pronounced neurasthenics. The young more often than the old are the readiest victims, and the female of the species is more often affected than the male. Playing cramps have even been known to besiege entire families of musicians where a definite psychic susceptibility seems already to have been set up. Severe shock, too, may bring on a stubborn occupational neurosis. Dr. Singer notes the case of a brilliant woman pianist who developed muscular paroxysms because of a broken engagement. A brilliant violinist fell victim after he had failed in a minor conservatory examination.

As in the case of psychic ailments, the cure for any physical occupational disorder may lie in abandoning the mistaken "method" of the pedagogue. A change from one teacher to another may set the technical musculature to moving healthily again. All wise musicians are familiar with those martinets who insist on their own "method" no matter how old-fashioned or nonsensical it may be. They will not deviate an inch from their prescribed routine, no matter

Occupational Diseases of Musicians

By ROBERT POLLAK

how much pain and fatigue their pupils suffer. It is only in recent years that teachers like Philipp of the Paris Conservatoire have shown that the study of technic may be a relaxation if it is coupled with an engrossing intellectual problem. A sensitive student may construct a huge technic, using only the magnificent Chopin études and Bach's forty-eight preludes and fugues, and have a really good time while he is about it.

The most common coordinative occupational neurosis is nothing but plain, everyday writer's cramp. It is the type disease of overexertion. All that can be said about the development, form and intensity of writer's cramp applies just as surely to the painful contractions of the muscles used in making music. The bookkeeper and the pianist alike complain of quick fatigue, paralyzation of the hand muscles, pains and tenseness in the hands and upper part of the arms and tonic contraction of the musculature. The pain sometimes spreads up into the shoulders. Spasms may force the thumb into rigid position in the hollow of the hand. The fingers of a hack copyist are often so stiffly spread that the pen cannot be held. The flexors of all the fingers may become so strained that pen cannot be lifted from paper. Tremors, incidentally, are characteristic of both musical and stenographic cramps.

There are other obvious parallelisms. The typical writer's cramp strikes at women more often than at men and rarely annoys either after the third decade. It is curious that the original artist, the composer of fine music or literature, is less likely to be bothered than the mere copyist. It is patent that intellectual ardor releases tension.

CERTAIN symptoms of the musician allied to writer's cramp are worth observing. The pianist's fingers seem to force themselves into or away from the keys whether or not he likes it. The thumb encroaches automatically on the other fingers. He experiences a general insecurity and weakness. If his fingers are abnormally short, he may favor certain digits until his fingering becomes ungainly, slow and illogical. Frequently, too, the disorder may not manifest itself as a localized spasm or cramp but may consist simply of a general, driving pain.

The pianist, racked with pain, usually loses the benefit of the right hand, rarely the left, but the violinist may experience the loss both sinister and dexter. He complains of pain in the fingers that press the strings, unpleasant sensation in the tense bowing hand and severe fatigue in both shoulders. His playing position is invariably the cause of his troubles. He probably holds his bow awkwardly and maintains a stiff bowing wrist. The rigid grip of the left thumb and the outside rotation of the left forearm also invariably lead to grief. The shoulder pains come from raising the bow too high or lowering it below the natural horizontal line.

THE 'cellist has an easier time of it and is less likely to become a patient. His arms are unraised, and he does not stand but sits. Double-bass players come off best of all. They have no complicated finger movements; the tonal dimensions of their strings are broad, and they zoom along without the complications of long solo passages. Organists, believe it or not, are never troubled with any occupational disease other than flatfoot, which is caused by constant pressing on the wooden pedals.

The young musician should avoid as he would the plague any artificial device advertised to relieve strain or improve technic. To quote Singer, "The bending and fixing of individual finger positions for the free and isolated movements of the other fingers are dangerous." You may recall that Schumann ruined his career as a pianist by using a machine to draw back his third finger and keep it still while the other fingers practiced exercises. As a result, he crippled all the tendons in his right hand. In

THERE IS A FAMILIAR LEGEND THAT ALL OBOE PLAYERS EVENTUALLY BECOME INSANE. I HAVE NEVER KNOWN A MAD OBOE PLAYER AND HAVE NEVER EVEN HEARD OF ONE.

"ANY EXERTION, ACCORDING TO ITS INTENSITY, MUST BE FOLLOWED BY ADEQUATE RECOVERY."

this instance his loss was our gain, for he turned to composition with renewed vigor. However, most young virtuosi are not gifted with any such substitute talent. Their teachers must prohibit the use of any artifice or mechanical contrivance.

There are many less common disorders of professional musical activity that arise through disease changes in internal organs, eyes, ears, tongue, skin, lungs and heart. Some of these disorders are evoked by general ailments which do not specifically distinguish the musician from other persons, but as they afflict the musician they are pertinent to our subject.

The hands of musicians often become chronically hot and sweaty. This condition may be the result of general exhaustion, fever or tuberculosis. It may occur only because of the extra irritation of vascular and glandular activity induced by playing. When this condition is present, the violinist is unable to enunciate his double stops. His fingers slide from the strings, and his intonation becomes unsteady. Pianists fumble about for accurate chord positions and have trouble staying on the black keys. Flutists are unable to open and close the air holes of the flute precisely.

"Playing through" is the professional name for pains in the finger tips of violinists and 'cellists. Sometimes a firm, calloused skin will not form, and the catgut becomes a constantly renewed irritant to the finger tips. With "playing through" there may arrive a scaly or moist eczema, ingrown hairs and deep fissures in the skin. The usual therapy is to wrap the finger tips in adhesive tape or, better still, to give them a week's rest. The budding virtuoso is usually still young enough to be told to keep his hands clean and his nails carefully trimmed. The young professional musician will avoid much unpleasantness if he heeds this commonplace admonition.

There is a familiar legend that all oboe players eventually become insane. I have never known a mad oboe player and have never even heard of one. Nor have I seen that apocryphal symphony member who got boils on his neck from sitting in front of a lunging trombonist. Seriously, however, most players of wind instruments are inclined to be nervous. They are responsible factors within the orchestral body, assigned to long and difficult solo passages. The expectation of coming difficulty in such a solo often increases the player's nervousness. The rush of blood to the head, the concentration and the excitement can change lip placing and cause lack of saliva. Dry lips blow poorly, and the insufficiently moistened tongue remains inelastic.

Flutists, clarinetists and oboists often suffer severe pains in the tongue during prolonged passages. When you listen to a flutist running blithely along with the coloratura in "The Mad Scene," remember that he may not be having as much fun as he would lead you to believe. His frequent pains in the tongue can lead to chronic sore throat and pressure in the tongue bone.

Players of wind instruments who work five or six hours a day for motion picture theaters have developed a disease of their own. The upper lip weakens, is caught in the opening of the instrument, and blowing finally becomes impossible. Both lips lose their healthy tension and firmness, and the situation becomes serious for the player who blows down a tube for his living.

Pains in the eyes, optical headaches or eyestrain are almost never due to overexertion. That musicians become myopic from reading the "fly specks" is pure myth. Poor light, bad smoky air, especially in cafés, and incorrect distances between player and music rack usually account for the optical disorders of orchestral executants.

The most serious and disagreeable disease of wind and brass players is emphysema, the enlargement of the lungs. It occurs also outside the musical world, but its frequency among orchestral blowers is especially high.

Dr. Singer says: "The essence of the process consists in the gradual shrinkage of the elastic fibers of the lungs. The lungs correspond to the normal neither during inspiration . . . nor expiration. The pathological state is best compared to a rubber band which is no longer new. . . . The inflation of the lungs in blowers is very often nothing but the result of an incorrect blowing method. . . . With shortness of breath, with apex pulmonary affections and with diseases of the heart, such emphysematic enlargements take place as compensation functions.

"Emphysema seldom appears in orchestral muscians before the fortieth year. When it is combined with disorders of breathing and heart action it incapacitates the person for earning his livelihood. An improvement is possible, but there is no cure for emphysema."

It is patent that the entire physical apparatus of singing must frequently be subject to certain types of occupational disease. A healthy condition of the cavities of the pharynx, nose and mouth is essential for correct and beautiful singing. Superficial ailments of lips, teeth, tongue, palate, uvula, tonsils, jaws and frontal cavities can temporarily or permanently mar the human voice.

It cannot be too strongly emphasized that the vocal novice should be carefully examined with reference to vocal character, hearing, tone culture, pharynx, throat and breathing. A thorough study should be made of his early disease history. Did he, as a child, catch cold easily, have frequent tonsillitis or suffer from hoarseness and catarrh? Is there any early record of anemia, weak heart, scrofula, or other disorders? Anything of this nature may crop up later as a permanent obstacle to a musical career. The way of the potential tenor or soprano is long and hard. It is better for him or her to know the worst promptly rather than to waste years of fruitless effort on a task for which the elementary physical equipment is lacking.

Psychic ailments, too, may preclude the possibility of ultimate success. If the aspirant to a musical career is hypersensitive to shocks or suffers from chronic nervous exhaustion and mental depression, he will need to effect a mental cure before he takes the road that Caruso and Melba trod. Otherwise he will waste his time and money.

I do not wish to sound unduly pessimistic, but the competition today is keener than at any time in the last ten years, and there are many unscrupulous singing teachers who sinfully encourage students who have little talent and less money. The student must try to know himself frankly for what he is. It may save him much unhappiness.

With voice culture should go frequent examination of nose, throat and sinuses for polyps, tonsil swellings or permanently enlarged tonsils. Surgery should be resorted to only in rare instances and then only when a top-notch surgeon and first-rate pedagogue concur as to the drastic remedy. The use of the knife can have a ruinous effect on the resonance of the human voice.

The question of correct breathing is of obvious importance to the vocal student. The beginner does not always realize that correct and economical breathing is necessary to beautiful singing even more than to beautiful speech. A bad teacher, one with an outmoded "method" or without the understanding of correct respiration, exerts a more damaging influence on the novice than does a pedagogue in any other line of music.

Functional vocal disorders are often caused by defective chest breathing or by the lack of coordination between chest and abdominal breathing. Such disorders are marked by a gasping inhalation and a weak, incomplete expiration. This type of respiration may be brought on by the nervous tension and excitement of performance. Or it may be the result of specific nose and throat trouble, nervous ailments, or digestive and circulatory illness.

A final word with respect to the voices of children should be included. In both public and private schools all over the country much mass choral singing is conducted without due regard for the delicate vocal organs of the child or for the period of voice changing in the adolescent. When he is encouraged to "sing out," he may have to shout at the top of his voice. From this added strain a permanent functional hoarseness develops. Awkward, gasping respiration may become characteristic. If the child is a potential speaker or singer, he is handicapped from the first.

It is interesting to note that Fathers Finn and O'Malley, two famous Catholic choral leaders, encourage their choristers to develop strong bodies by playing baseball and football; but no matter how keen the game, shouting is taboo. Choristers must cheer in whispers. Both directors, incidentally, allow their charges to sing through the voice-changing period without a break. They manage it by strict avoidance of strain and overexertion.

I leave with you Dr. Singer's significant adage, a maxim vital to all musicians eager for successful careers: "Any exertion, according to its intensity, must be followed by adequate recovery." This sentence should be pasted up in every student's practice room. It is the key to the therapy of all musical occupational diseases.

"Occupational Diseases" in Children

The Third Article in a SYMPOSIUM on

FROM THE MEDICAL POINT OF VIEW

By Herbert B. Wilcox

THE SECOND occupation common to childhood is sleep. At first thought this does not sound as though it were a dangerous occupation; and yet if provision is not made for sufficient sleep or for sleep at the right time in quiet, darkened and well ventilated surroundings, the child may suffer from lack of rest to mind and body. Nervousness and fretfulness in children are often the result of poor sleeping conditions. The younger the baby the more sleep is needed. For the first month the infant sleeps practically all the time. For the first six months, eighteen of the twenty-four hours are required for sleep, twelve at night with a three hour nap twice during the day. For the first six years a normal child continues to need this twelve hour sleep at night. The daily naps become shortened. A two hour nap after the midday meal should be continued through the sixth year and, after this, a rest period should be provided although the child may no longer sleep.

Sleep is a natural expression of the body's need for recuperation. It does not need any encouragement other than a regular opportunity for its occurrence. Rocking and singing retard rather than hasten sleep. Babies and children should be put to bed when the proper time comes and left to go to sleep by themselves. Nor is it necessary that the household activity should stop when the time for the nap arrives. A reasonably well child may be expected to fit into the household regimen and accustom himself to sleep through the ordinary noises associated with it.

He will not, however, sleep well in an overheated or a poorly ventilated room. The temperature should never be above 63 or 65 F. in winter. A constant change of air should be provided. The proper temperature is obtained by leaving the heat on; the proper ventilation is secured by keeping the windows open sufficiently, and the proper moisture in the air is supplied by the provision for evaporation of water in the room. To keep the humidity as it should be, the average nursery requires about 3 square feet of water surface open to evaporation.

Infants will not get the rest that they should from their sleep if they are allowed always to lie in the same position. They should be turned from side to back and to the other side as long as they are still too young to turn themselves. They should be wrapped snugly but not tightly in a lightweight blanket. The bed clothing should never be heavy enough to cause perspiration.

When the weather permits, there is great advantage in sleeping outdoors. When the baby is 1 month old, this may be begun, preferably in a basket, with careful shielding of the eyes from direct light.

Regular hours for sleep go hand in hand with regular hours for mealtime. Indeed, one cannot successfully be carried out without the other. For the infant, rest and sleep are practically identical. The time comes when one can no longer expect, and much less force, the older child to sleep during his midday rest period. One can, however, train him to lie quietly and rest. This period of quiet is necessary not only for muscular relaxation and recuperation but also to allow the digestion full opportunity to go on after the heavy midday meal. Toys and picture books should not be allowed. There is no better means of teaching self control than by insisting on this quiet midday hour.

Exercise is of less importance to the infant than to the older child, but some attention must be paid to it even during the early months if firm muscles and strong bones are to be developed. The baby's first form of exercise is his bath. In the tub, with the shoulders supported by the mother's hand, he can kick and squirm, and he should be encouraged to do so. If the spray table is used instead of the tub, he still has an opportunity for free use of his limbs unencumbered by his usual clothing. His circulation is helped and his skin stimulated by the warmth and by the rubbing and drying. The process of *(Continued on page 182)*

HEALTH and DISEASE

FROM THE STRUCTURAL POINT OF VIEW

By Miriam T. Sweeny

HAVE YOU seen the Empire State building or the Chrysler building in New York? Have you ever watched the start of a skyscraper, the powerful steam shovels and drills preparing with detailed accuracy for the solidity and integrity of the foundations? Have you noted the dexterity and adroitness with which each glowing rivet is caught and placed by responsible workmen?

There can be no mistakes, no careless or ignorant workers on these jobs. Human life is at stake! All knowledge must be used in such construction work, for the completed structure must resist stresses and strains, must not sag, lean or topple. All will depend on the proper start and the preservation of good mechanical principles.

What goes on inside afterward will be greatly affected by the proper placement of the vital parts that make up the finished whole. Beauty is also desired. When the building is finished, it is a product of man's brain and brawn, proof against gales of hurricane force and the ravages of time; it is upright, four-square and firmly fixed in foundations of granite.

These skyscrapers are fast becoming commonplace. They no longer inspire wonder and certainly not awe, but their building is a stupendous feat of mechanical and structural engineering even though it is taken for granted.

However, there are still more marvelous engineering accomplishments—human skyscrapers. These also rise upward from a relatively small base; and if started properly, they have power to resist stresses and strains and the ravages of time. But they possess a conspicuous attribute which outranks any of the foregoing achievements; this is the power of motivation.

The human skyscraper is also taken for granted, probably because it comes to us in miniature, potentially finished form. The new baby is a little unit of perfect machinery. He is a potential human skyscraper. Do you realize that most babies come into the world structurally and mechanically perfect but that before they are 5 years old, children often show defects of structure which are not due to disease? These defects may handicap them in the proper use of their bodies and may even result in unsightliness or crippling conditions if allowed to progress.

Therefore having a perfect machine given us, can we, as parents, do anything less than protect it and keep it perfect? We must bring proper knowledge to this job of building, so that when our babies are "assembled" in the upright, or ready-to-go position, they will be ready for it.

Watch a new baby. See what he does when he is left alone. After all, at this stage he is only a little animal, and we can learn much from the cub and the puppy that will be of value if applied to the human counterpart.

A little baby begins by kicking and waving his arms and legs about; he squirms and wriggles and turns his head from side to side. These seemingly aimless movements are doing important work. Development of muscles comes this way, and general muscle strength must be gathered through repetition in these early months of horizontal existence.

We must get this human structure ready to rise on his foundation. We cannot just put him on his feet and say, *Voila!* We have to build his strength while he is flat, so that when he stands, his framework will be knit together by sinews and muscles that are strong enough to meet the stresses and strains of the upright position and will not allow sagging or bending before the "gale." A perfect machine is only as good as its weakest part; therefore all parts must be equally strong.

How then should you go about building this structure? In the beginning you will allow the little adventurer to follow his own intuition. Protect him, guide him perhaps, but do not interfere in the early stages of aimless activities. About the sixth *(Continued on page 182)*

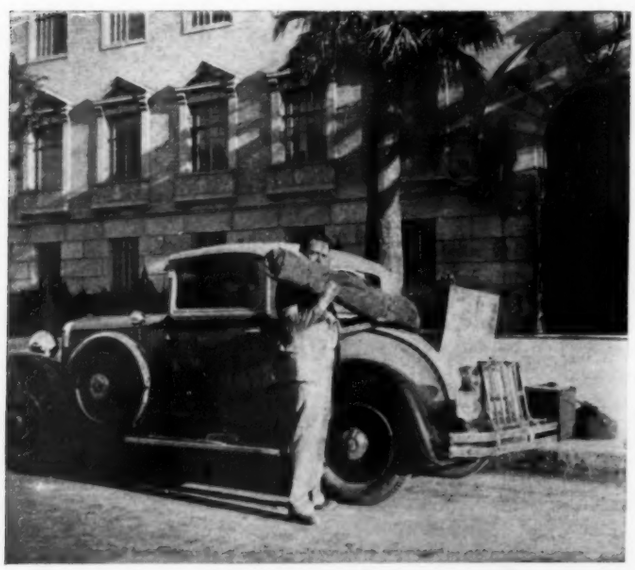
HEALTH EDUCATION IN ARIZONA

SEPTEMBER 13, 1933, the Arizona state board of health issued a news bulletin to the state press, announcing the inauguration of a division of health education within the department. The new department was being established "with the hope of arousing a deeper interest in all health problems throughout the state, and particularly among our school children."

The bulletin also stated that the department would gladly lend its full cooperation to any city or town, school or club in the state which desired to hold a "health day" or "health week" program, and would, wherever possible, send a representative from the department to take part in such a program by making health talks and showing health films on the department's own projection machine, purchased for such purposes.

This bulletin marked a new step in the affairs of the state board of health in Arizona and, as has been proved since, it inspired a renewed interest in health matters throughout the entire state. It also heaped on the board additional work which was hardly dreamed of when the bulletin was written and for which no extra funds were provided by the legislature. On the contrary, that body had slashed appropriations right and left in keeping with the times.

In order to carry out this proposed "health educational plan," the superintendent of the state board of health, Dr. George C. Truman, who had once worked in a "motion picture house" when a boy in Florence, Ariz., authorized the purchase of a complete 16 mm. motion picture equipment. So, in the interest of better health in Arizona, and in the face of a 30 per cent reduction in the department's appropriation over that of the previous administration, the equipment was purchased and paid for out of the regular operating fund.



THE CAR WAS LOADED WITH SCREEN, PROJECTOR AND FILM; AND SO BEGAN THE WORK OF AROUSING A DEEPER INTEREST IN ALL HEALTH PROBLEMS THROUGHOUT THE STATE.

THE equipment purchased consists of one 16 mm. projector with a 500 watt lamp, one screen 45 by 60 inches and two extra lenses of 1 inch and 3 inches. For transporting this equipment about the state, it was also found necessary to purchase waterproof canvas to cover both the screen and the projection machine, waterproof bags for the films and several lengths of extension cord; the latter purchase was made after the first trip during which time several things were learned about showing films in school buildings.

Because of the length of the screen, the secretary of the department in full charge of this program found that the only practical car to use on these trips was his coupé, as it was provided with a rumble seat. When the seat was removed, there was ample room for all the equipment, and the screen could stick out the top without in any way interfering with traffic.

While the mechanical equipment was being acquired, attempts were made to secure the best health films obtainable in the 16 mm. size, and it was finally decided that, in order to make the campaign a success, it would be necessary to buy at least a few good films which the department could call its own. Consequently, one film was purchased; and through the courtesy of the Metropolitan Life Insurance Company, the loan of two 16 mm. and two 35 mm. films was obtained. The larger films were used in theaters which would accept them. The original film collection consisted of the following: "Man Against Microbe," in both the smaller and the larger size film, "The Conquest of Diphtheria" in the 16 mm. size and "Working for Dear Life" in the 35 mm. size, all loaned by the Metropolitan Life Insurance Company, and "Tuberculosis and How It May be Avoided," purchased by the department.

We made several short trips out of Phoenix, during which time we "felt our way," and then decided we were ready for some really big health programs. Through bulletins sent to schools, clubs and the press, we soon began to receive requests for showings; and within thirty days after the purchase of the equipment, we were dashing over the highways in the state, keeping appointments, showing pictures and making health talks in the state to elementary

In Which Forrest E. Doucette Describes a Novel Project

schools, high schools, private schools, luncheon and civic clubs, parent-teacher organizations, women's clubs and private gatherings, to say nothing of the Indians of both the Gila River Reservation and the Navajo Reservation, and transient camps consisting of men and boys "on the bum" from every state in the Union.

One of the greatest surprises to us in the experiment has been the many requests for showings from luncheon clubs made up entirely of men. In several cities these clubs have sponsored health day programs and made our films and health talks the major part of their programs. However, we anticipated more interest among the women's organizations, such as the Parent-Teacher Association and women's club units, than has been experienced.

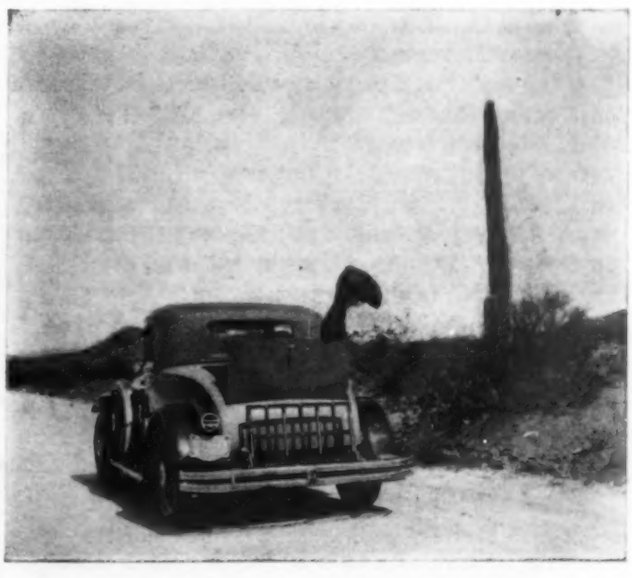
After a number of long trips, during which time we showed the films to several thousand students, we purchased the film "Breathing," and in cooperation with the Arizona Dental Society, we purchased "How Teeth Grow" to add to our collection. There was also loaned us a 35 mm. film called "A Jolt for General Germ," with sound disk; and during Phoenix Health Week, the American Social Hygiene Association loaned us three 16 mm. films on venereal disease and a series of four 16 mm. films entitled "The Gift of Life."

My co-workers and I have traveled more than 7,000 miles by car since starting this work, over the fifth largest state in area in the union. We have crossed the state east and west from Greenlee County on the New Mexico line to Yuma County on the Colorado River and have traveled from the southern border at Nogales on the international line to Tuba City north of Flagstaff on the great Navajo Indian Reservation. Good roads and bad, sunshine and rain, day driving and night driving have made no difference in the stability of the equipment carried. We have experienced several bad road jolts during these trips, and as yet the only damage done to any of the equipment has been several burned out pilot lights which may or may not have been the result of these road shocks. The original 500 watt lamp that came with the machine traveled more than 5,000 miles and was used in showing the films to more than 25,000 persons before it burned out.

We have been confronted with all kinds of problems in showing these films, the greatest of all being the lack of shades in school auditoriums or the very absence of such a luxury as an auditorium. In many of the schools, we have been requested to show the pictures immediately before the noon recess or before the last period of the afternoon. With the Arizona sun shining as it does, we have had to overcome many difficulties in fighting sunlight. In several schools we have had scarcely any covering over the windows, while in others we have had the joy of being in a theater as fine as any school in the nation could boast. On still other occasions the school has adjourned to the local theater contributed for this program, and we have "set up" somewhere in the center of the theater to be within range of the screen with our small projectors.

We do not loan or rent our equipment to any one. If a club or a school or a community is sufficiently interested to work up some kind of a health program, we will make every effort to cooperate by appearing as a part of the program to show our pictures and comment on health matters.

On one trip, which totaled more than 1,400 miles, we showed the films to college students, starting at 7:30 in the morning, to the Rotary club at noon, and to public and parochial schools all afternoon. We showed the films to more than 450 Navajo Indians at Tuba City in the great Navajo-Hopi land one evening; and on another occasion, 300 miles south of this point we showed them to approximately 500 Pima Indians out on the desert at night, the Indians sitting on the ground all about the projection machine. We were also outside at another time when about 900 men and boys gathered in a transient camp at the state fair



WHEN THE RUMBLE SEAT WAS REMOVED, THERE WAS AMPLE ROOM FOR ALL THE EQUIPMENT, AND THE SCREEN COULD STICK OUT WITHOUT INTERFERING AT ALL WITH TRAFFIC.

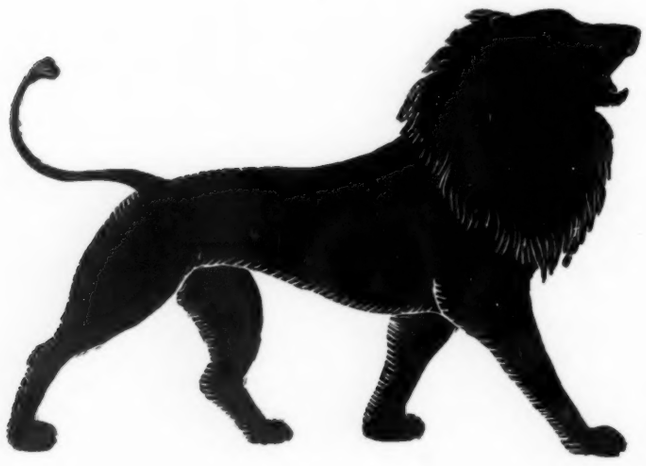
grounds in Phoenix; our only competition was a crescent moon.

Our largest indoor audience consisted of approximately 900 students, and our largest outside audience, at night, reached the same figure, although in an entirely different part of the state.

We have now exhibited these health pictures to more than 38,000 school students and teachers, club members and private gatherings, and all this has been accomplished in a five month period in far scattered sections of this vast state. The elementary school population in Arizona is somewhere in the neighborhood of 80,000; that of the high schools is 16,000. The population of the state of Arizona as given by the 1930 U. S. census is 435,573; so we still have a big job ahead.

Dr. Donald B. Armstrong, third vice president of the Metropolitan Life Insurance Company, has said in commenting on our Arizona plan of health education, "We know of no other health department in the States with as well organized a plan, including publicity, transportation, cooperation of schools and communities. . . . We believe that the difficulties you are overcoming, such as the vast distances alone, would have dampened a less courageous program."

Health is a business in Arizona. Our state is growing and thriving on this business. People are coming here from all points of the compass to bask in the sunshine and dry climate. They are coming here with every sort of ailment. Therefore, the Arizona state board of health has a great responsibility on its hands and although operating on approximately 3 cents per capita of state appropriated money, plus 4 cents from the Rockefeller Foundation, or a total per capita cost of 7 cents, this department must carry on and use every method possible to convince its people of the importance of public health.



Forecast FOR MARCH

With the rare understanding of human nature and of adult and child psychology which characterizes her writings, *Sophia Yarnall* discusses another phase of child training. In "The World's a Stage," she considers the joys and benefits of the game of "dressing up," which under proper guidance may become so much more than a game. "Despite the modern, psychiatric minded mother's fear of overaccenting her child's fantasy life," she writes, "I am sure that, if properly approached, dressing up can become one of the most interesting and useful forms of a child's play." The many experiences of the author's own family form a delightful background and setting for these excursions into the world of make believe.

"How you feel and how much you get out of life are surprisingly dependent on the proper functioning of your vital organs," writes *Dr. Philip Lewin* in an article, entitled "Posture," in which he makes special reference to sitting posture and the protection of the eyes. "Many of life's mysterious ailments can be traced directly to stoop, slump and bad habits of sitting." Dr. Lewin discusses postural defects and their correction, and gives ten postulates of good posture.

In "Lumps in the Breast," *Dr. Norman J. Kilbourne* sounds the warning that probability of cure of breast cancer depends on immediate examination. "An excellent 80 or 85 per cent chance of permanent cure of early breast cancer is spoiled," he declares, "by postponement of attention during the early stages, often at the rate of 8 per cent less chance for every four weeks of delay."

Fever can sometimes be a blessing in disguise, for, "within certain limits," writes *Dr. Bernard Fantus*, "it is actually good for us when we are fighting microbial invasion." What fever is; when it is an advantage; the use of medicine in fever, and other important points are considered by Dr. Fantus in his article "What to Do and What Not to Do for Fever."

"It is an arresting fact for the consideration of the tax payer and the citizen," writes *Dr. James Francis McDonald*, "that more hospital beds are devoted to the mentally ill than to all the physically sick." In "Mental Strain Masking as Physical Disease," Dr. McDonald discusses personality defects and maladjustments and cites several cases in which failure or inability to cope with an unpleasant life situation is reflected in a physical breakdown or disability.

In "Massage Versus Mauling," *Dr. Maurice F. Lautman* gives an estimate of the true value and proper methods of massage and decries the exaggerated claims that have been made for it. He condemns most emphatically the erroneous idea, "If a little will do good, much will do more good," and stresses the fact that the watchword of correctly applied massage is gentleness.

The Clothes Moth

Chapter IX of

Our Parasites

By CLAUDE LILLINGSTON

THE CLOTHES MOTH, of which there are several species, is a legacy from some remote ancestral home, in all probability somewhere in Africa. From this historically and geographically obscure origin, it has followed the trade routes of the world till it has become the pet aversion of every conscientious housewife in several continents. Time was when it confined its activities to hot countries, preying on other members of the animal kingdom. With the development of civilization, it has adapted itself to a less venturesome life, satisfying its hunger on such dead substances as woolen clothing, the feathers of stuffed birds, and other artificial products of comparatively modern times. Whatever the past of the clothes moth may have been, its present habits are such as to make a study of its life cycle interesting even to the housewife, who in other fields of entomology may not care a fig for the fate of the lesser beings about her.

The instinct that makes us all pursue a flying moth is probably so deeply ingrained that we are not liable to sit still and ignore it even on learning that, in this stage of its life cycle, the moth is incapable of feeding. It is in the maggot, or larval, stage that the moth destroys our clothes, furs and feathers. There is another reason for regarding the moth in flight as a comparatively harmless creature. It is almost invariably a male. The female moth, according to the German entomologist Dr. E. Titschack, seldom trusts herself to the air, preferring her feet to her comparatively small wings as a means of locomotion. Her cargo of eggs is another obstacle to flights of any length; on the rare occasions when she is caught on the wing, the odds are that she has already laid her eggs and that her capacity for mischief belongs to the past. It may be argued, of course, that killing the male must break an essential link in the chain that constitutes the life cycle of the moth. This is quite true in theory. In practice we have to remember that, as far as we know at present, the female moth is not strictly monogamous; the loss of one husband does not necessarily imply her retirement into widowhood for the rest of her life. Titschack, who distinguished between the sexes of the moths he caught, found that 65 per cent were males. With two males to every female, the housewife is not likely to solve her moth problem by running after an isolated male here and there.

THOROUGH BRUSHING IS HELPFUL IN REMOVING MOTHS.

ENTOMOLOGISTS distinguish between clothes moths and house moths, and recognize more than one species in each group. There are, for example, the common clothes moth, Tineola bisselliella; the white tipped clothes moth, Trichophaga tapetzella; the case-bearing clothes moth, Tinea pellionella, and the large, pale clothes moth, Tinea pallescentella. There are also the white shouldered house moth, Endrosis lactella, and the brown house moth, Borkhausenia pseudospretella. They vary considerably in size, and the wing expanse of the largest is about 1 inch. It is said to be easy to distinguish between a clothes moth and a house moth on the run, for they carry their wings in different ways. However, what interests the housewife more than minor racial differences are the destructive tendencies in the larval stage of all these moth races. They are all subject, more or less, to the same laws and are susceptible to the same poisons and other factors exploited in the campaign against them.

The life cycle of the moth includes the egg, the larva or maggot, the pupa or chrysalis, and the sexually mature adult. The female adult continues to lay eggs for from two to twenty-four days, her eggs being oval, ivory yellow and

less than 1 mm. long. They are laid singly or in groups between the strands of wool or hair. A good layer produces on the average between forty and seventy eggs, according to Major E. E. Austen and A. W. McKenny Hughes, who have recently had a monograph on this subject published by the British Museum of Natural History.

These fragile eggs hatch in from eight to ten days. The larva which emerges is translucent, is 1 mm. long and is provided with several pairs of legs and prolegs. It begins to feed as soon as it is hatched; and since its skin is translucent, the larva assumes the color of its food. The larva grows rapidly and, if it is in the mood for doing so, it spins a thin, gossamer veil, some ten or fifteen times as long as itself, wherewith to drape itself in comely outlines. The larva feeds from either end of this delicate casing, which is occasionally abandoned when fresh pastures are sought and the larva spins itself a new veil. It is this veil with which the housewife is so unhappily familiar when she opens a trunk to which moths have had access. When the veils are brushed aside, the erosions underneath tell their own tale.

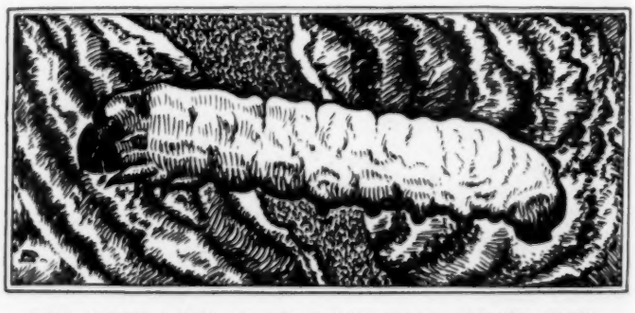
THE length of the larva's life depends, of course, on the surrounding temperature, the food supply, freedom from disturbances, and other factors. Life is said to be speeded up by a comparatively high temperature and a rich diet. It would appear that, under ideal conditions, the larvae may survive for several years in resting cocoons in which they abstain from eating. Experiments on fully grown larvae, kept in congenial surroundings in every respect except for complete lack of food, have shown that this deprivation did not prevent them from developing into moths capable of laying fertile eggs. It is thus evident that we have to do with a beast possessing marvelous powers of endurance and resistance to vicissitudes which would starve his fellow creatures to death.

The dietary of the larva is liberally mixed. It includes woolen clothing, hair, fur and feathers. Museum specimens, from pinned insects to stuffed mammals and birds, are also fair prey. Cobwebs are also eaten. In times of stress the larva will dispense with its normal diet of animal origin and will become vegetarian, attacking stored grain and sugar. At a pinch it has been known to feed quite happily on such deadly poisons as aconite root, strophanthus and Indian hemp. Ginger, linseed, saffron and a monkey skin have also passed muster from time to time as nutriment. Having eaten all it can and come to the end of the first phase of its life, the larva spins some of its food into a dense cocoon which is almost ⅓ inch long. Here it changes into the pupa or chrysalis, a stage which may last from fourteen to forty-four days.

When the adult moth emerges from the cocoon, the cocoon's frayed end plainly betrays its emptiness. Mating takes place shortly after this event, and the female soon begins to lay eggs. Adult males and females, kept in captivity but otherwise allowed all the amenities of life, have lived a month or longer. The average lifetime of virgin females in captivity was twenty-seven days, according to a series of experiments conducted by Titschack. The same observer found fertilized females living an average of thirty-four days in captivity.

IN THE case of certain pests, such as rats, the most effective weapon of extermination is starvation, but there is not the remotest possibility of our ever being able to starve out the clothes moth. To do so, we would have to dispense not only with all woolen garments but also with furs and feathers, including feather beds and those stuffed animals wherewith we substantiate tales of our prowess told to a critically attentive younger generation. Starvation is certainly out of the question. But as we shall see, the clothes moth is vulnerable in many ways and, provided our attack is well sustained and not halting or fitful, the clothes moth has not a chance against us.

The house or flat left shut up for months in the summer is an ideal breeding ground. It is almost impossible to pack away in moth-proof receptacles every article to which, under stress of starvation, the moth may take a fancy. In the case of bedding and clothing, not to mention valuable furs, it is often a sound investment to pay for their lodging in the cold storage provided for this purpose in large towns. Continuous cold storage will paralyze, if it does not actually kill, the activities of the clothes moth in every stage of its life cycle. It is true that, in the larval stage, the clothes moth can survive exposure to a temperature several degrees below freezing; but such a temperature numbs its faculties, discouraging every emotion but that of hope deferred. What is, however, far more deadly than a uniformly low temperature is the temperature that ranges widely from one extreme to another. This is the lesson taught by E. A. Back in the case of articles already infested with the clothes moth. He recommends a preliminary exposure for several days to a temperature of 18 F. The temperature is



FULL GROWN LARVA OF THE WHITE TIPPED CLOTHES MOTH.

then suddenly raised to 50 F. at which it is maintained for a short time. It is then reduced again to 18 F. and is finally raised to 40 or 42 F. at which it is kept indefinitely.

The thorough brushing of garments which are suspected of harboring moths is as effective as chasing the male moth on the wing is futile. The eggs are thin shelled in contrast to the tough shelled and securely anchored eggs of the louse and certain other parasites. The larvae of the clothes moth are also delicate, sensitive creatures, easily crushed and dislodged from their insecure resting place. Both eggs and larvae are also easily injured by heat, whether it comes from the sun or from a fire. Exposure to the sun for two or three hours or to the heat of a good roaring fire cooks the eggs and shrivels up the larvae; and if those which shelter under coat collars and in various linings are dealt with summarily with a stiff brush, there is little chance of the survival of even the fittest clothes moth. If any suspicion lingers in the housewife's mind as to the success of this operation, she should repeat it every fortnight during the summer. In this connection, Major Austen gives the practical hint that soiled spots on clothing have a particular attraction for the larvae. It is therefore a sound precaution to have clothing cleaned before it is put away.

MUCH can be done by means of stout packing paper and cardboard boxes within which garments are stored; but the owner must be assured that the garments are beyond suspicion before they are stowed away and that the receptacles are well sealed up, the packing paper being repeatedly folded on itself and pinned down at the edges, and that the junction of the cardboard box with its lid is sealed with adhesive paper. This defense is only passive; a hole in the paper or a detached piece of gummed paper makes the value of all the other precautionary wrappings illusory. The defense can be made offensively active by certain poison gases that have negligible effects on human beings.

One of the most deservedly popular moth killers is flaked naphthalene. Its action depends on its fumes. It follows that naphthalene scattered about on the shelves and floor of a well ventilated room is not going to embarrass the clothes moth. But in more or less air-tight receptacles, naphthalene is fatal to the moth in all its stages. Back calculates that 1 pound of good naphthalene flakes, scattered between the folds of clothing in a trunk of average size, will be sufficient for its purpose. A still more effective but also a much more expensive moth killer is paradichlorbenzene, a crystallized substance with a sweetish smell. Like naphthalene, paradichlorbenzene is harmless to human beings. These products are used in the same way. When an upholstered chair or sofa is found to be infested, 2 or 3 pounds of paradichlorbenzene crystals are dusted into every crevice with meticulous care, and the article of furniture is then at once tightly covered with several blankets, which are left in place for several days.

CAMPHOR and pyrethrum powder deserve honorable mention, but they are inferior to the two chemicals already mentioned. Pure camphor is by no means cheap, and pyrethrum powder must be fresh if its action on the clothes moth is to be lethal; soon after it has been exposed to the air, pyrethrum powder becomes practically inert. There are many other household remedies for the clothes moth that are hallowed by tradition but do not enjoy the prestige which carefully controlled tests confer. Black pepper, for example, is popular in many quarters for its alleged moth killing properties, but entomologists have found it worthless for this purpose.

Upholstered furniture, into the composition of which woolen material has entered, is liable to be the birthplace of several generations of moths whose very existence may be unsuspected until it is betrayed by a careless male moth on the wing or by a crop of white larvae shaken out of their resting place by an inconsiderate jolt. The vapor bath with paradichlorbenzene will meet the needs of such a case. If detachable chintz or cretonne covers are removed and thoroughly brushed at frequent intervals, and if the vacuum cleaner is mercilessly applied to every questionable object, the householder will be spared the unpleasant discovery of furniture teeming with larvae and eggs. The operator of the vacuum cleaner should always remember that the corners of carpets and rugs least exposed to wear and tear are the corners that are most dear to the heart of the moth.

Stuffed birds and other trophies may be sprayed from time to time with gasoline when there is no fire burning in the room at the time. Turpentine is also effective as a spray. Not only does it kill the moth in every stage of its evolution, but there is also a residue of turpentine which continues to distress the moth long after the spraying has ceased. The operator should be quite sure the turpentine will not discolor the articles thus treated. Less drastic measures are required for such delicate objects as pinned butterflies and other entomologic specimens liable to tempt the palate of the clothes moth. If a saturated solution of naphthalene in chloroform is freely painted on the inside lining of a specimen box, its occupants will be preserved from other destructive insects as well as from the clothes moth itself.

[NOTE.—In the March HYGEIA, Dr. Lillingston will continue his discussion of "Our Parasites" with an article on "The House Fly."]

The Golden Age of Prevention

Chapter II of
THESE TEETH OF MINE

By DAVID W. McLEAN

"DOCTOR, how early should our baby's teeth receive attention?" The question expresses determination that the child shall grow up with teeth well cared for. But it is wrong in presuming that decay is inevitable; it asks how soon decay's ravages will demand correction.

The tooth replaced by a bridge at the age of 30 was a dead tooth at 20. The dead tooth at 20 was a decayed tooth at 10. The decayed molar at 10 erupted into the mouth at 6 years of age but was being formed at birth.

Deep down in the jaw, at birth, the builder cells are in readiness; the forms and scaffoldings are prepared, and the materials are being brought to the scene for an amazing building operation.

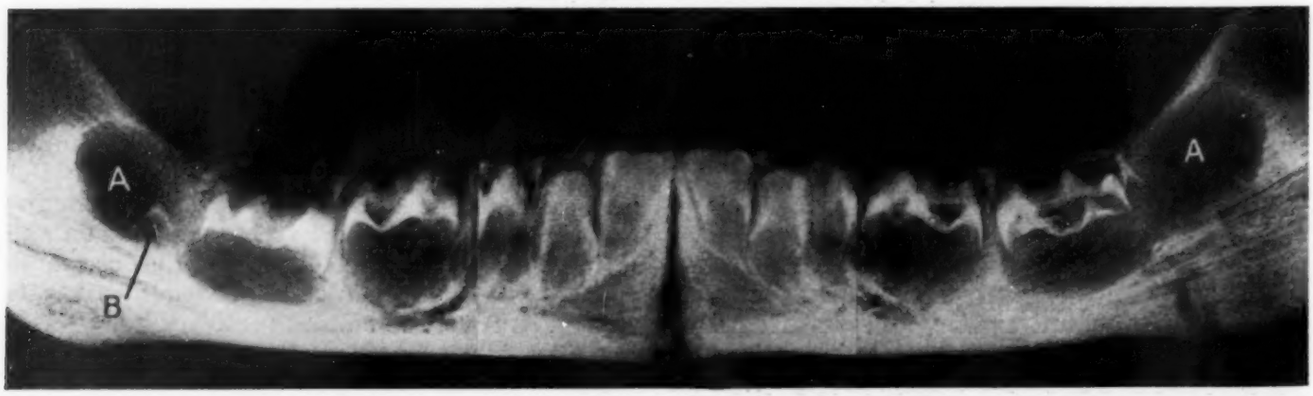
Months before birth the layer of flesh covering the jaw started growing inward, forming first a fold and then a cord which ran lengthwise through the jaw. From this cord a stem grew down near the site of each future tooth; on the end of each stem grew an enlargement known as the tooth bud. Then the cells of the tooth bud extracted materials from the blood and began building the tooth. The hard outer enamel shell was built from without and the softer dentin making up the body of the tooth, from within; the flesh that built the dentin built itself into a box and remained in the center of the tooth to become the pulp, wrongly called the nerve.

As the time of birth approached, twenty temporary teeth were thus forming in the jaws. Also, in each of the four back corners of the baby's jaw a big permanent molar was forming, and down under some of the baby teeth still other buds were getting ready to form the permanent cuspids, or "eye" teeth.

At the moment of birth, then, several years before the mother thinks to ask her dentist how early the baby's teeth should receive attention, deep down in each side of each jaw the chewing surfaces of the permanent molars are forming. Six years later these teeth will erupt into the mouth and will find the biting level where their chewing surfaces meet. The cusps or peaks of the upper teeth will fit perfectly into the valleys between the cusps of the lower ones. When the lower jaw moves in chewing, the cusps of these lower teeth will glide through between the cusps of the upper teeth. But now, myriads of cells deep down in the bone are fashioning the complex shapes of these teeth to harmonize with every chewing movement of a jaw which never yet has moved.

THIS amazing process reveals the scope of nature's plans and the precision with which they will be carried out, if there is no interference. During babyhood, childhood and youth, every obstacle must be kept out of nature's way. Safeguards must be placed at every crossroad, and all signals must be set for a clear track ahead. An investigation of the causes of decay, crooked teeth and pyorrhea will demonstrate conclusively that the prevention of those diseases is not a matter of a brief gargle, at some critical moment, but of devotion to a lifelong policy which must begin with life itself.

Childhood's golden age of prevention is an age of profound responsibility for parent or



X-RAY PICTURE OF LOWER JAW AT BIRTH, SHOWING CROWNS OF TEMPORARY TEETH; (A) AREAS IN WHICH THE PERMANENT MOLARS FORM, AND (B) CUSP OF PERMANENT MOLAR ALREADY FORMED. (FROM THE COLLECTION OF DR. SPENCER R. ATKINSON.)

guardian. First of all, the materials needed for building these teeth before the birth of the child must be available in the mother's blood in sufficient quantity and suitable form. If they are not part of the mother's diet, an inexorable nature will set a host of cells to work removing the necessary materials from her own bones and teeth and tossing them into the blood stream in order that those other builder cells may build them into the new bones and teeth of the child. Inefficient diet for the mother is the key to that age old adage, "For every child a mother's tooth." A mother's dietary inefficiency may even then result in soft teeth and bones for the child.

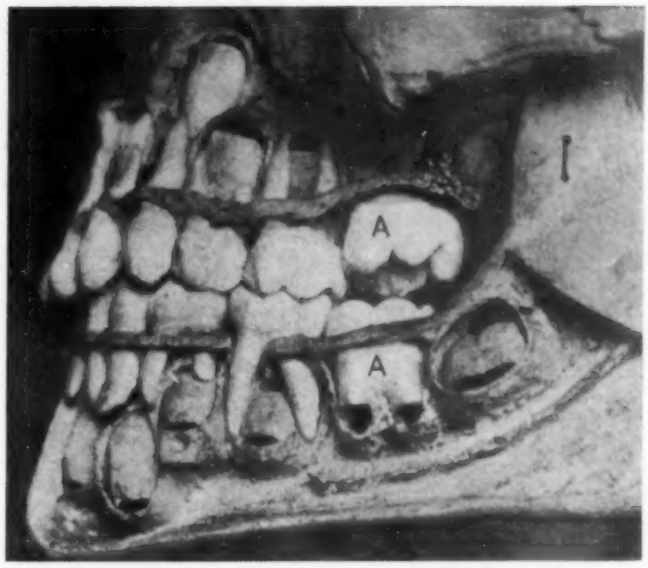
I recall a mother of three children of college age: two strapping, handsome sons and a fine, healthy daughter. They had splendid teeth; there were hardly a half dozen small gold fillings among them. Both parents had poor teeth, and the mother gave credit for the children's teeth to her faithfulness in taking lime-water before each child came. I confess to being so impressed that thereafter I prescribed lime-water for my expectant patients.

Substitute dicalcium phosphate for lime-water, thus adding phosphorus to the lime; add the mineral and vitamin bearing vegetables and fruits; add also sunshine or cod liver oil or both and, as far as teeth are concerned, you have brought the prenatal diet up to date.

IT USUALLY falls to the physician to prescribe this prenatal program. The eruption of temporary teeth, from about the seventh to the twenty-fourth month, also comes during the period when the physician is still in attendance on the child; the general illness attending difficult "teething" automatically places the matter in his hands.

The dentist seldom sees his patient during the most important period of his dental life. No one could more capably prescribe a dietary routine for tooth welfare than the physician, but the sort of dietary deficiency that causes soft teeth does not cause pain or illness to bring it to the physician's attention. Indeed, soft and decaying teeth are sometimes the chief symptom of nutritional deficiencies and of general health that is not quite up to par. The tooth brushing program of early childhood is frequently instituted and directed by amateurs or by chance alone. So, too often, the child's dental life starts unguided, and he is not brought to the dentist until pain caused by decay dictates the visit.

By the age of 4 or 5 years the infant jaws should be outgrowing the small baby teeth. Down underneath are the permanent teeth. They are not yet fully formed, but the parts of these permanent teeth already formed are as large as they will be in adult life. Teeth once formed never grow larger, though their roots do become more complete. The jaw that does not outgrow the small temporary teeth will not be large enough to accommodate the permanent ones, and they will come in crowded, or "crooked." If at the age of 5 the baby teeth have not spaces between them, consult the dentist or the orthodontist, who specializes in the straightening of teeth. If even before that time the child's chin seems unduly prominent or not sufficiently so, it is well to consult an orthodontist.



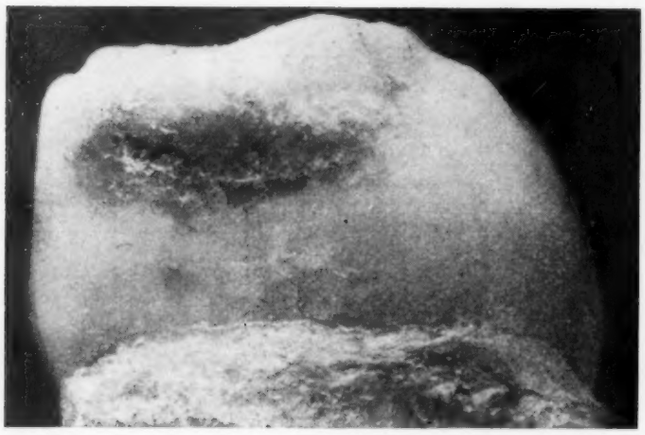
BETWEEN THE AGES OF 6 AND 7 YEARS THE TEMPORARY TEETH ARE ALL IN PLACE, AND THE PERMANENT 6 YEAR MOLARS ARE ERUPTING (A). (FROM A SPECIMEN IN THE MUSEUM OF THE ATLANTA SOUTHERN DENTAL COLLEGE.)

Many parents have a mistaken belief that no permanent teeth will erupt until some temporary teeth are shed. The lower permanent molars, however, appear at the age of about 6, one on each side of the jaw, erupting in back of all the temporary teeth. Confused with the temporary teeth, they are often permitted to decay in the expectation that soon they will be shed and replaced.

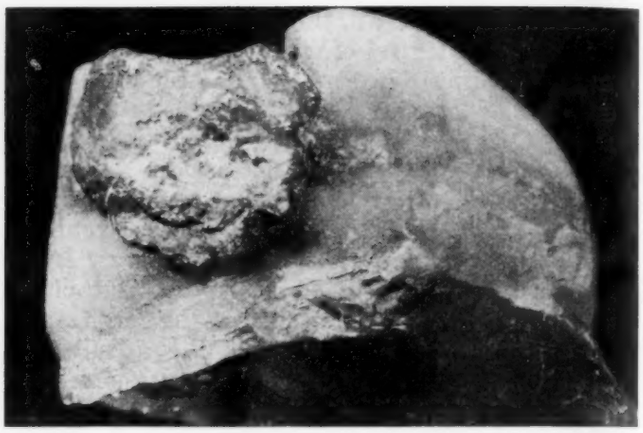
THESE permanent first molars of the lower jaw are the largest and the most important teeth in the mouth. When one of them is prematurely lost, the jaw's incentive to grow seems to go with it. The other erupting permanent teeth move over and find easy space without stimulating the jaw to growth. The dental arch, the curved line of the teeth, collapses. The lower first molar has been called, therefore, the keystone of the dental arch. And it is cut at the age of 6!

Although it is the most important tooth in the mouth, the lower first molar is usually the first to get into trouble. In addition to being mistaken for a temporary tooth, it too often arrives on a stage all set for its decay.

If there are unfilled cavities in any temporary teeth, the saliva is freighted with decay-producing germs. If a neighboring tooth has an unfilled cavity on the surface touching the



IF BACTERIA ARE ALLOWED TO COLONIZE IN THE DISEASED SURFACES OF THIS TEMPORARY SECOND MOLAR (GREATLY MAGNIFIED), THEY WILL CAUSE DECAY OF PERMANENT TEETH.



MICROSCOPIC EXAMINATION OF THIS "HURRY-UP" FILLING OF AMALGAM IN A TEMPORARY MOLAR REVEALS WONDERFUL PLACES FOR BACTERIA TO SET UP LIGHT HOUSEKEEPING.

new tooth, decay is certain. Fermenting food lying in the cavity of the neighboring, temporary tooth will rest against the permanent tooth; the acids produced by this fermentation, together with the bacteria swarming in the cavity, soon attack the new tooth.

These lower permanent first molars erupt when the mouth is small; there is not too much room for them. Often they erupt slowly, and a flap of gum extends over the chewing surface for many weeks. Food débris and bacteria start decay in the shelter of this flap. These important teeth should be examined carefully within a few months of their arrival. There probably will be several tiny cavities starting in the central groove or fissure, which runs from front to back on the chewing surface.

"Oh dear," exclaims the worried mother, "I do hope John is not going to have soft teeth like mine. Surely it isn't right for him to have cavities so soon in those new teeth."

SUCH cavities do not necessarily indicate soft teeth. They often occur because of developmental defects. The lower permanent molar has five cusps. At John's birth, when the tooth was being formed down in the jaw, it grew from five centers, one at the peak of each cusp. The enamel formation starting there spread in all directions until these five islands of enamel united. The lines of union are represented by the grooves at the bottom of valleys between the cusps. If two of the islands did not perfectly unite, there results a deep fissure in this groove. After the tooth erupts, saliva, food débris and bacteria get into that fissure, and the resulting fermentation decays the tooth. The finest toothbrush bristles are too large to get into the fissure to cleanse it; the decay spreads rapidly in the soft dentin underneath, although there may be hardly a pinhole on the surface of the tooth to reveal it. The fissure must be drilled out early and filled, or two or three of these little cavities will unite under the enamel surface and undermine the entire crown of the tooth, perhaps reaching the pulp and at any rate making necessary a large, deep filling. Unfortunately this first filling is usually made of amalgam; at 15 or 20 years of age, the cavity will have been refilled or patched a couple of times and the pulp will be exposed or involved. The tooth may then become a dead tooth or a missing tooth.

Amalgam is the easiest way of filling the tooth at that early age, but it is not the best way. The best of gold fillings is the best filling to use. The tooth has a long term of service before it, and it should have the most durable filling possible.

ANOTHER fallacy about children's teeth is the old belief that gold fillings are foolish because the tooth will grow away from them and they will require replacing later. This idea must have been fostered by the crevice which often appeared around amalgam fillings and was the result not of tooth growth but of shrinkage of the amalgam. All human teeth erupt with their crowns full grown.

It goes without saying that children's permanent teeth should, if possible, be filled with gold and that they should be filled in the first pinhole stage of decay.

During childhood the soft, temporary teeth will usually develop cavities, which should be promptly filled lest they involve the pulp and result in dead teeth. If a clean mouth, with vital, efficient teeth throughout is important to an adult, how much more important it is to a child during this period of growth when deterrent influences leave their mark for life!

From the sixth to about the thirteenth year there is a steady performance of tooth shedding and tooth cutting. Lower teeth usually erupt first, to be followed in a few months by their mates in the upper jaw.

At about 7 years of age, a year after the arrival of the permanent molars, the first of the temporary teeth will be shed. They are the two lower central incisors at the front of the mouth; permanent teeth will erupt in their places.

Shortly after, the same process will occur to the corresponding teeth in the upper jaw.

At 8 years the same process will affect the lateral incisors, one on each side of the central incisors; first the lower ones, then the upper.

At 9 years the temporary first molars will be shed, and the first permanent biscuspids will appear.

At 10 the temporary second molars will be shed, and the second permanent biscuspids will erupt.

At 11 the cuspid or "eye" teeth go through the same performance. The temporary teeth now have all been shed.

At 12 years of age the lower permanent second molars erupt back of all the other teeth and soon are followed by their mates in the upper jaw.

The wisdom teeth come in usually between the ages of 15 and 21; they may erupt later, or they may be impacted or missing. They are not called wisdom teeth because of any sense of their own but because of the late age at which they erupt.

If the shedding of any of the temporary teeth is delayed more than a year from this order, the dentist should be consulted. When they persist in blocking the way, the permanent teeth below them may sidestep and come in outside or inside the line of the other teeth.

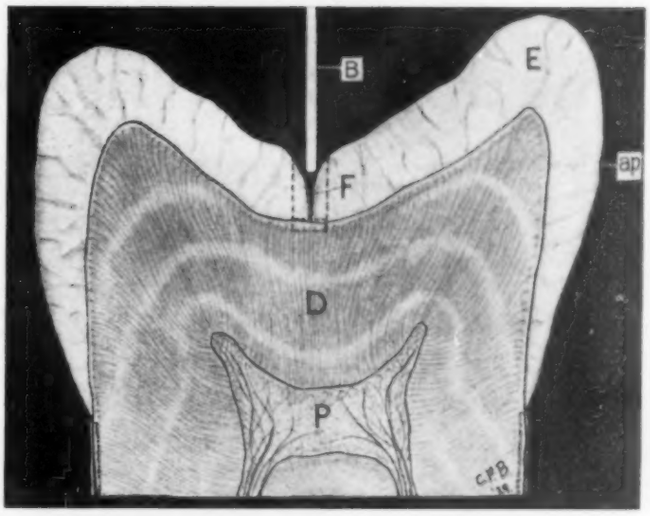
Premature loss of temporary teeth is also liable to cause crooked second teeth unless a temporary bridge of some sort is introduced to maintain the space; otherwise the tooth at each end of the vacancy will drift into the opening, robbing the permanent tooth below it of the space into which it should later erupt.

THE crowding of a child's erupting permanent teeth exerts pressure which stimulates jaw growth. With the loss of a baby tooth, the pressure is relieved and the incentive to growth of the jaw is removed. As the permanent tooth tries to crowd its way into its rightful space, now usurped, there will be worse confusion than ever.

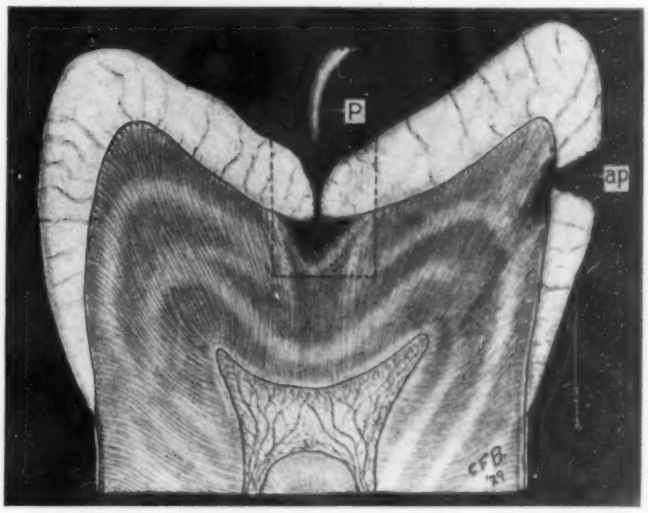
When temporary teeth first erupt, they have little or no root; it takes the root two or three years to develop to its full length. The root then begins to melt away again; as it shortens, the permanent tooth below it begins to rise toward the surface. By the time the temporary tooth loosens and is shed, its root is almost entirely gone.

This led to an early belief that the erupting pressure of the permanent tooth caused the temporary root to melt away. The temporary root will melt away even though there is no permanent tooth below it, but the process will be much slower. It may take until 30 or 40 years of age.

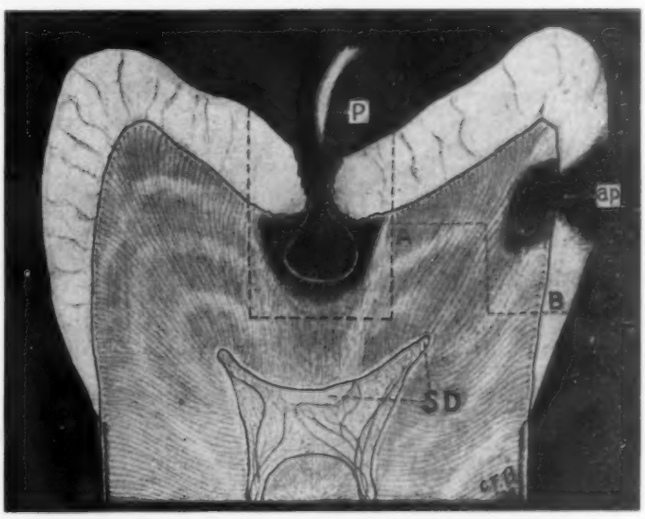
When a temporary tooth has lost its pulp and is called a dead tooth, *(Continued on page 164)*



ENLARGED VERTICAL SECTION OF PERMANENT MOLAR. BLOOD VESSELS IN PULP (P) CARRY NOURISHMENT TO DENTIN (D) AND ENAMEL (E). AVERAGE TOOTH-BRUSH BRISTLE (B) IS TOO LARGE TO CLEAN FISSURE (F). DOTTED LINE MARKS SIZE OF FILLING NEEDED. DECAY STARTING ALSO AT AP.

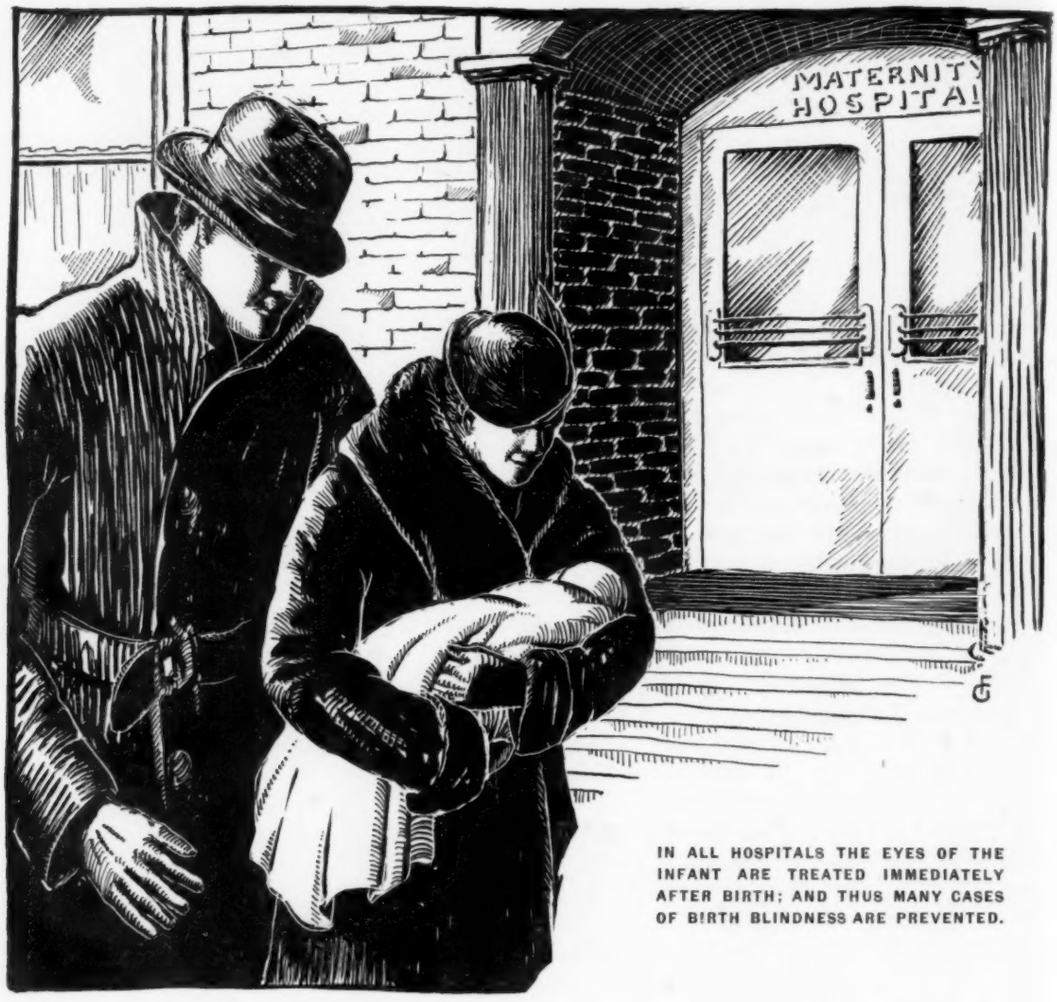


DECAY, SPREADING RAPIDLY, HAS REACHED SOFTER DENTIN. DENTIST'S INSTRUMENT STILL TOO LARGE TO PENETRATE SMALL SURFACE OPENING, BUT LARGER FILLING NOW NEEDED.



SECONDARY DENTIN HAS BEEN LAID DOWN (SD) TO PROTECT PULP. LARGER FILLINGS REQUIRED. (COURTESY PROF. F. C. BODECKER AND DENTAL DEPT. OF COLUMBIA UNIVERSITY.)

The Eyes in Infancy and Childhood



IN ALL HOSPITALS THE EYES OF THE INFANT ARE TREATED IMMEDIATELY AFTER BIRTH; AND THUS MANY CASES OF BIRTH BLINDNESS ARE PREVENTED.

SINCE TIME has been counted, and before that, some newcomers into the world have been punished with blindness that is acquired through no fault of their own. The offence, whether it is caused by ignorance or by carelessness, is the parents', while the punishment is visited on the innocent and newly born baby. Gonorrheal infection of the eyes of the new-born, or ophthalmia neonatorum, is still responsible for approximately 20 per cent of all blindness in the United States, according to a government report.

This disease has been much talked of and written about, especially since the German physician Credé discovered the means to prevent the blinding of infants' eyes and introduced and taught the application of his method.

When looking out on the world and enjoying the blessings of sight, one should remember the great benefactor Credé and say in the silent gratitude of one's heart: "Were it not for Credé, I too might have been blind." There should be a self admonition to spread the gospel of prevention further, for the scourge is still prevalent. It is estimated that the cost of educating the children blinded by this disease amounts to $4,000,000 yearly in the United States.

Since 1890, laws and regulations for the reporting, prevention and treatment of gonorrheal infection in the new-born have been enacted in nearly all the states and territories of the Union. Some are more comprehensive and effectual than others. In some states free educational courses in the prevention of the disease are offered to midwives and nurses; in certain states the drug employed in prevention is distributed free.

Nevertheless, gonorrheal infection of the eyes of the new-born occurs in daily crops throughout the land. If the numbers are diminished and the ravages of the disease are lessened, it will be due to constant vigilance and early medical care. If the present vigilance were lessened, the disease would again today become the scourge it once was. Humanity is no different from what it has been, and modes of living are no purer. The gonorrheal organism, spread by

Chapter VIII of THE EYE BOOK

illicit and unguarded sexual contact, is the cause of causes. When the disease is brought to the marriage bed, the baby becomes its next victim. The baby's eyes are infected as he passes through the birth canal where the germs live in the secretions.

The following case is more or less typical. A young farmer and his wife, with faces downcast in grief and voices halting in embarrassment, brought their first-born to the eye physician to consult him about the baby's eyes. The questions and answers tell the story.

"How old is the baby?"

"Two weeks," answered the mother, still weak from her confinement.

"Were you ill in any way before the baby came?"

"I was all right." (The father privately admitted that he had had a gonorrheal infection shortly before they married.)

"Were the baby's eyes well when he was born?"

"Yes, as bright and clean looking as could be," and the young mother smiled at her infant while she gulped down a sob as she looked at the child's swollen, red eyes.

"Who confined you?"

"A midwife we called in from town."

"Did she put drops in the baby's eyes immediately after he was born?"

"I don't know."

"Didn't you know it is necessary to do that for the protection of the eyes?"

"I didn't know."

"When did the trouble with the baby's eyes begin?"

"It was the third day."

"How did the trouble begin?"

"The eyelids began to swell, and they became red; then they closed altogether, and pus began to come out from between them, more and more."

The diagnosis was clear, and it was confirmed by a microscopic examination of the discharge from the infant's eyes.

The child was placed in a private room in a hospital, and the mother stayed with him to nurse him. One eye escaped serious injury. In the other the cornea became involved, and an opacity was left which usually means a permanent reduction in vision. That was the story in only one case. In other cases, blindness in one eye or in both eyes often results. What about the many cases and their prevention?

If gonorrheal infection exists before marriage or is acquired at any time later, it should be treated and rooted out without delay; and the mother, or prospective mother, should be guarded against having the infection transmitted to her. Before a child is allowed to come into the world, he should at least be guaranteed that no recognizable disease, known to exist, will be inflicted on him from the start. The origin of the infection may be due to ignorance and to many circumstances in the present mode of living; to spread it and to inflict blindness on innocent babies is downright and unforgivable guilt.

If there is the slightest suspicion that the expectant mother is suffering from such an infection during her pregnancy, she should consult a physician who will find out how serious the case is and, if necessary, begin preventive treatment.

Immediately after birth, without loss of time and preferably before the child first opens his eyes, the eyes should be washed with cotton dipped in warm boric acid solution. Following that, the treatment and method first introduced by Credé is employed: One drop of a 2 per cent solution of silver nitrate is dropped in each eye. A slight redness of the eyes follows for a day or so, but the redness is absolutely harmless. When this process is immediately and properly carried out, birth blindness is prevented. All hospitals and physicians follow this routine in every case. Many midwives do; all midwives must learn to do so.

THE water of the infant's first bath should never touch the eyes.

The infection may occur subsequent to the birth of the child by means of infectious secretions from the mother's or nurse's fingers or from sponges, towels or other articles.

Prevention can be effected by placing a drop of the silver solution in each eye immediately after the child is born; cure is possible if a doctor is put on the case as soon as the slightest first symptom, such as a swelling of the lids or a drop of discharge, is noticed. Every parent should play safe. The same general symptoms are sometimes produced in infants' eyes by infections other than those in which gonorrhea is the causative factor. Only the physician, by microscopic examination of the discharge, can tell the difference between such diseases.

In neglected cases or in cases that are treated too late the cornea is attacked by the virus of the disease and becomes ulcerated. A scar is formed in the transparent little window after healing has taken place; this scar reduces and sometimes almost abolishes the sight. In still

By HYMAN COHEN

WHEN THE CHILD HAS MEASLES, THE ROOM NEED NOT BE DARKENED TO PROTECT THE EYES, BUT THE CHILD'S BED SHOULD BE PLACED WITH THE HEAD TOWARD THE WINDOW, SO THAT THE LIGHT DOES NOT STRIKE THE CHILD'S EYES DIRECTLY.

worse cases, complications ensue and the eye is destroyed.

An ordinary case of gonorrheal infection lasts about four weeks. Owing to the profuse discharge and to the great susceptibility of the human eye to gonorrheal infection, the greatest care must be exercised not to carry the infection to the well eye, although usually both eyes are involved, or to the eyes of the mother, nurse and other members of the family. All unnecessary contact should be avoided; sponges and all other articles used in treating the eye should be burned; towels, pillow cases and sheets should be boiled, and the hands must be thoroughly scrubbed with soap and water. It is important to remember also that water, towels, cotton or cloth used for the mother must never be used for the baby.

Gonorrheal infection of the eyes of adults is even more terrible than that of infants. The eye infected is destroyed in 25 per cent of such cases. One case is a calamity; to allow another case to arise from the first one is a crime.

This is the disease that contributes to the populations of institutions for the blind. This is the story of mishaps that occur through ignorance and carelessness. It is the message of prevention and of the steps to be taken if prevention has failed.

Malformations of the eyelids should be corrected by plastic operation; and the sooner this is done, the better. Certain injuries suffered by the child during delivery manifest themselves by the drooping of an eyelid, or ptosis; by an inability to move the eye freely in one direction or another; by squint, and by a resulting tilting of the head to one side or the other. Such conditions should be diagnosed by a doctor and corrected at an early date.

Eczema, to which some babies are subject, and other skin conditions may creep up on the eyelids. They are to be treated according to the nature of the condition. In eczema, a correct diet is important, and there should be no wetting or rubbing of the lids; a doctor will prescribe the proper lotion or salve.

Redness of the eyes is a prominent, early symptom in measles. There is a shedding of tears and sensitiveness to light; there may be a little secretion in the corners of the eyes. Rarely does graver trouble develop. The room need not be darkened to protect the eyes, but the child's bed should be placed with the head toward the window; in this way the light does not strike the child's eyes directly. For removing the secretion a warm boric acid solution should be used. The child's eyes must not be taxed with books or eye-straining toys.

Scarlet fever produces an inflammatory redness of the eyes as part of the general systemic infection. It rarely affects the eyes seriously.

Erysipelas, when it invades the eyes, may lead to serious complications. It calls for energetic treatment.

Diphtheria is a general systemic infection with localizing inflammation and the formation of a dirty gray membrane in throat, windpipe, nose and other mucous membrane surfaces. Sometimes it attacks the eye directly, and a membrane forms there. This disease may produce ulcer of the cornea, cause paralysis of the eye muscles and injure the optic nerve. The grand specific remedy is diphtheria antitoxin given early and in efficient dosage. Local treatment will be prescribed according to indications. Tonics and exercise are employed for the paralysis left behind.

TUMORS in the eye usually occur late in life, but there is one kind of tumor, glioma, which occurs only in the eyes of young children and may appear at any time from birth up to the fifth year. Glioma results from a degeneration of the retina. It is noticed as a whitish or golden yellow glow in the pupil. The affected eye may feel harder than its fellow. Glioma is a blinding and often fatal disease. Only immediate removal of the eye can save the life of the child.

The tumor is cancerous in nature and may occur in both eyes.

A condition which resembles such a tumor is caused by an abscess inside the eye.

One eye or both eyes of a child sometimes grow extraordinarily large, an instance of infantile glaucoma. The condition may be present at birth, or it may develop during the first year. It is caused by a distention of the eye with fluids that are held pent up because the drainage system in the front chamber of the eye is blocked.

The eye projects, stares, and is hard to the touch. The great pressure inside it causes wasting of the optic nerve, and the sight is gravely impaired. If the processes of enlargement, great pressure and nerve destruction keep up, the eye becomes blind. If they stop, some sight is left.

When the crystalline lens, instead of being crystal clear and perfectly transparent as it is normally, is found to be milky or chalky, and hence opaque, the disease is known as cataract.

This condition is sometimes congenital; that is, it exists at birth. It usually occurs in both eyes, the lenses being either completely opaque or only partially so. It is usually some time before the discovery is made. There is no medical treatment for cataract. Operation to remove the cataract and to aid its disappearance by absorption should be performed as soon as the condition is discovered, no matter how young the child is. If it is not done at an early date, the opportunity for the development of good normal sight is gone forever. The operation is simple and may have to be repeated a number of times.

THE fine membrane covering the inside of the eyelids and the front part of the eyeball is called the conjunctiva. A disturbance in the general circulation or any external irritation may lead to a congestion of this covering. The eyes feel heavy and tired, as if there were fine grains of sand in them. There may be itching and burning, but there is no discharge when there is only a simple congestion.

If infection takes place, discharge appears and there is an inflammation, or conjunctivitis, of which there are several types.

During the school age period when children congregate in the classroom, there is, in addition to various germ organisms that cause inflammation, the prolonged use of the eyes at close range. These factors contribute to conjunctivitis. Other contributory causes are uncorrected sight defects, the smoke and dust of large cities, foreign bodies lodging in the eye, and unsanitary surroundings in many homes. Digestive disturbances also play an important rôle. These are the general causes that apply to all cases of the several related types.

The word "acute" means of sudden onset and of sharp degree; "catarrhal" means accompanied by discharge. Acute catarrhal conjunctivitis occurs in childhood as well as in the succeeding periods. It is caused by germ infection. There is a bright redness and a varying amount of swelling of the membrane lining the lids. Often it extends backward into the conjunctival sac and to that part of the conjunctiva which covers the front of the eyeball, the white of the eye.

The discharge may be thick or thin, profuse or scant. It is found in the corners of the eyes in the morning, on the borders of the lids, between or on the lashes. It may paste up the eye and mat the lashes together, or it may be dry and scaly. The eyelids itch and smart, feel hot and heavy, and grate as if covered with dust or fine sand. There is oversensitiveness to light and increased shedding of tears; this is not to be confused with a discharge. When the secretions film the cornea, the sight is blurred. Usually both eyes are affected. The symptoms vary in severity; the duration is from a few days to a week or two.

ACUTE catarrhal conjunctivitis sometimes spreads to other members of the family, hence the patient should not share his bed with any one; such articles as towels and handkerchiefs should be individual.

Mild astringents are usually prescribed for the smarting and itching, and the doctor's orders as to the method of administering them should be followed.

The patient should keep out of glare or strong artificial light when there is an oversensitiveness to light. Smoked glasses may be employed temporarily. A salve of boric acid and petrolatum will keep the lids from sticking.

When the acute attack is over, the predisposing causes of the inflammation should be determined and eliminated; the digestion should be corrected, errors of refraction should be remedied by glasses, and poor lighting and unsanitary surroundings should be avoided.

Follicular conjunctivitis is really a persistent form of the acute catarrhal variety of conjunctivitis with the presence of follicles. A follicle is a small, pinkish elevation, ranging in size from that of a pinpoint to that of a pinhead, and located on the conjunctiva. It results from the persistent irritation of the adenoid elements in the conjunctival tissue. When small, the follicles look like fine grains of reddish salt sprinkled on the membrane. When larger, they resemble pale pink herring eggs, arranged in horizontal rows like strings of pearls. They occur mostly on the lower lids and especially back of the fibrous plate in the eyelid, in contradistinction to similar growths in trachoma, which occur mostly on the inside of the upper eyelids. In general the symptoms and treatment are the same as for the acute catarrhal form of conjunctivitis, but the *(Continued on page 186)*

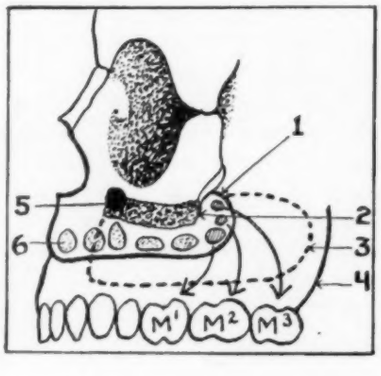
HAS YOUR CHILD SINUS TROUBLE?

By John J. Shea

THE HUMAN body is constructed to combat the infections to which it is exposed. Good health is enjoyed by a continuous process in which the body is protecting itself through resisting infections. If a new or virulent bacteria is encountered or if large numbers attack, this resistance may be overcome, and sickness ensues. The system of organs which carries on this function against infections in the breathing tract includes the adenoid, tonsils and sinuses around the nose.

The writers of the past century gave many names to the lymphoid tissue in this region, but today it is referred to as the adenoid, and its diseased state is called adenoids. This collection of lymphoid tissue, which is normal and most active during the early years of life, should recede after the sixth year. During the first two years of life it is the most active member of this self protecting system, and as a result it is the most frequent to succumb to infection and be the site of an acute cold. Its size varies. There is a type of child who inherits an abundance of lymphoid tissue and naturally comes by a large adenoid. Still another group of children have enlargement of the adenoid as a sequence of frequent colds.

When the adenoid enlarges, it fills the nasopharynx and blocks the mouths of the eustachian tubes, which are canals leading from the ears into the pharynx. This blockage by damming infection within the middle ear produces an abscess during the acute stage of an infection and deafness during the interval between infections. The adenoid may mechanically hold infection within the nose; on the other hand its large size may be the result of nature desiring a warming pad to filter inspired air. The infant nose is wanting in any tissue capable of fighting infection, save the adenoid; this may account for the fact that its situation serves as a barrier between the nose and the lower respiratory, or breathing, tract.



At birth the sinus is present in the upper jaw, and it grows as the upper jaw develops: 1, posterior border of infantile maxillary bone; 2, infantile antrum; 3, adult antrum; 4, posterior border of maxillary bone; 5, natural opening into antrum; 6, deciduous teeth. The shaded area shows the upper jawbone of an infant, aged 5 months, and the clear area shows an adult bone.

The early removal of the adenoid throws an added responsibility on the tonsils, which in turn enlarge. It is considered good surgical judgment to remove only the adenoid in children under 3 years of age, when the symptoms indicate that the adenoid is infected and the tonsils present a healthy appearance and have a good record. Later the same tonsils may undergo degeneration and require removal, but during the added years they have helped in the maintenance of the child's resistance.

The tonsils are two enclosed masses of lymphoid tissue situated between the mouth and the throat. The tonsils and the tongue belong to the alimentary tract. They reflect the doings of the intestinal tract, and many a case of tonsillitis occurs because of an upset of the intestines.

THE tonsils are readily seen and are therefore frequently diagnosed as diseased. They begin their activity during the first months of life, reaching their greatest activity between the sixth year and puberty. The body changes that occur at sexual maturity inhibit their functions, and if they are free from infection they lose some of their glandular activity. The tonsils never waste away entirely. Following the menopause, the tonsils may take on new life, and in many women past 35 the tonsils take on fresh infections and have to be removed. Following surgical menopause the tonsils become more active and reassume a glandular aspect. The early removal of tonsils (between 2 and 5 years of age) throws an added responsibility on the sinuses, and the younger the age at which this removal occurs, the less mature are the sinuses. The immediate relief to the sinuses is of value, as these immature sinuses may have been fighting their own battle with the added handicap of an additional burden of the poison generated by the diseased tonsils. Bad as the tonsils may be, they do help during their quiet stages to store up some immunity; and when they are surgically absent, this whole function falls for the most part on the sinuses. The many scattered glands of the throat and neck help, but still the sinuses play the major part in resisting disease.

The tongue presents on its back surface two collections of lymphoid tissue called the lingual tonsils. These tonsils are the most active lymphoid tissues of the aged found in the nose and throat. During young adult life they reflect the condition of the gastro-intestinal tract, which comprises the stomach and intestines; and in those past 40 they often are the site of an acute tonsillitis when the remaining lymphoid tissue of the throat is apparently not involved.

The sinuses around the nose are spaces, lined with mucous membrane, which communicate

with the nasal cavity. The frontal sinus is situated above the eye and should correspond in size with its fellow of the opposite side. The maxillary sinus, called the antrum (meaning cave), fills the upper jaw. The sphenoid sinus is situated farthest back, and with its mate it is encased in the sphenoid bone. The ethmoid sinus is made up of many cells which form the lateral nasal wall between the nose and the orbit, the bony socket which contains the eye; these cells spread out in irregular fashion above and below the orbit and back to contact with the sphenoid bone.

The nose is the organ of the sense of smell and the gateway of the respiratory tract. The functions of the sinuses are to serve as reserve air chambers, to lighten the cranium, to supply information as to the state of equilibrium, to help to maintain resistance against the respiratory infections of one's environments and to be forts in which to wage battle with invading infections.

The sinuses develop by a process of pneumatization, which means that the spaces containing air enlarge with definite changes of the surrounding walls of the cavity. At birth the maxillary sinus is present, and it grows as the upper jaw develops. The floor of this sinus is above the level of the floor of the nose until puberty is reached, when it becomes even and in the adult sinks lower than the level of the floor of the nose. The permanent upper teeth are in proximity to the antrum, and the molars depend for their eruption on the backward development of this sinus. Infection of the maxillary sinus either by one severe attack or by numerous mild attacks will arrest its development. The reason for the failure of the upper wisdom teeth to erupt is thus explained in the adults who have persistent infantile sinuses.

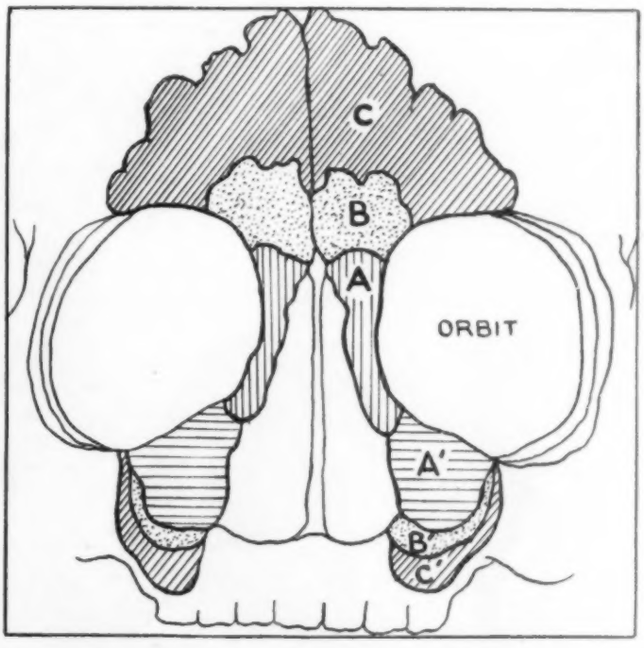
The ethmoid cells are divided into an anterior and a posterior group which contact but empty into different parts of the nasal cavity. At birth and for the first two years there are no frontal sinuses. Then an anterior ethmoid cell on each side begins a migration into the frontal bone, and by puberty it has grown half way over the orbit with a proportional height. The adult sinus may not grow much larger or may grow to extensive size, and those sinuses that stop growing before the age of puberty has been reached are smoothly outlined in contrast to small partitions found in those that continue their growth after puberty. One frontal sinus may be arrested in its growth and its fellow may extend across the median line, but the two sinuses do not normally communicate, and each empties into its side of the nasal cavity.

The sphenoid sinus at birth is in front of the sphenoid bone, and by 4 years of age the bone has enclosed it. This sinus is the first to mature and may reach its full size by 10, whereas the frontal sinus continues to develop until the age of 16 or maybe 20 has been reached.

The normal child is the fruit of the family tree and inherits sinuses similar in shape to those of the parent whom he resembles in facial appearance. This knowledge may be used to contrast the present state of growth of a child's sinus with what is to be expected. A mother brings in Mary, aged 5, who has had frequent colds. Two years previously the child's adenoid and tonsils had been removed, and during the first winter she had improved; but for the past year she has had one head cold after another.

An x-ray picture is made of the child's sinuses. If the sinuses have developed to the size normal for her age, no harm has been done the sinuses. But in Mary's case the doctor thinks her sinuses should be larger; in other words, they have stopped their normal growth. To make his position more assured he can take another x-ray picture of the parent whom the child resembles and have some basis of comparison with the plate of his little patient. The parent who has an arrested set of sinuses caused by infection during his or her childhood does not transmit this acquired condition to the offspring.

AN ACUTE sinusitis in childhood is the result of failure of the sinuses to carry on their part in the fight against infections of the upper respiratory tract. If the sinuses are blocked, such measures should be instituted to promote the necessary drainage. Simple shrinkage of the nasal mucous membrane is usually sufficient in the milder cases; shrinkage and suction may be needed in the more severe cases; and sinus irrigation is indicated when the first two methods have failed. If one accepts the theory that the sinuses are part of the self protecting system, artificial



Composite roentgenogram of average normal sinuses, showing A, infantile ethmoidal sinus; B, frontal sinus at puberty; C, extremes to which a frontal sinus might develop; A', antrum at 2 years of age; B', floor of antrum at puberty; C', floor of antrum in adult.

immunizers such as vaccines should be instituted. The best vaccines are those made fresh for each case. A sinus should be sterile, and any germ obtained from within it is a candidate for the vaccine. Many hospitals retain in their laboratory the cultures grown from the acute cases and season the autogenous, or self produced, vaccine with them on the principle that these cultures represent the current infection of their community at that time. Stock vaccines are scientifically assembled, but their strains are those of the previous years.

The farther away the calendar is from summer, the more common is sinusitis. Sun baths during the summer store up in the body something that is slowly expendable from the end of summer until the next year. The taking of cod liver oil is a good substitute for these sun baths and should be instituted as soon as the baths are stopped. If a severe attack of sinusitis is sustained by a child during the winter months, a trip to a climate sufficiently warm to permit sun baths is a great help. If a winter vacation is not possible, ultraviolet radiation may be given. This radiation should be gradual and of sufficient frequency to imitate the natural sun baths. The use of ultraviolet radiation within the nose is a local stimulant to the membranes of the nose and augments the general body radiation.

The diet of children afflicted with sinusitis should be scientifically guided. The use of sugars must be restricted, and fresh vegetables and fruits are vitally necessary. A child can handle more fats during the winter months, and dairy products may be partaken of freely. If a child is sensitive to any food, it should be avoided.

Some persons inherit a constitution that makes them suspectible to unnatural and unlawful reactions to foods, pollen, dust and the emanation of animals. If this reaction is nasal, the membrane of the nose and the sinuses will swell and present symptoms similar to those of infectious sinus disease; but a careful examination will differentiate one from the other.

In the beginning, sinus disease is a local affair, but if it is not corrected, a chain of symptoms will follow as the various systems of the body suffer. The discharge that drips back into the throat and is swallowed will disturb the digestion of these children. A glimpse at the material recovered from the sinuses during a treatment will give some idea of the damage it must necessarily cause in the stomach and will readily reveal why children with this condition lack appetite. The gastric juices are used to neutralize this discharge; and when food is urged on these children, there is nothing in the stomach with which to digest it. The throat and larynx manifest their objection to the presence of the postnasal drippings by a worrisome clearing of the throat or coughing; the tissues of the throat are irritated, and the swelling of the membrane of the larynx causes hoarseness. The discharge that is absorbed by the lymphatic glands finally drains into the glandular system of the chest, producing a chronic bronchitis. The infections that enter the circulation damage the heart, kidneys and joints, and the results of focal infection are soon apparent.

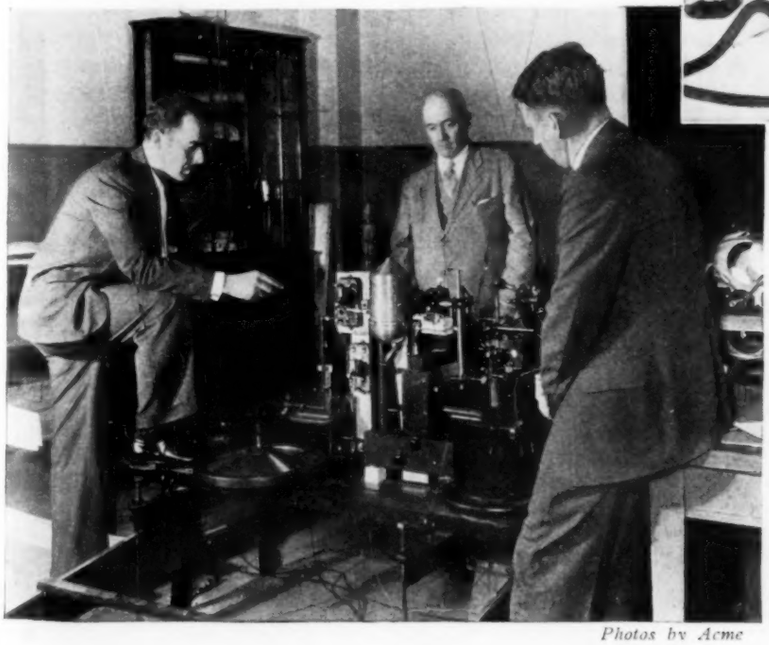
If every acute cold in a child is treated as if any of these serious conditions were imminent, the chances are that none of them will happen. If the child is so unfortunate as to become a victim of sinus disease, do not delay, but immediately place him under the care of a modern physician who is in sympathy with the treatment of the disease. By all means do not believe in the false statement, "once a sinus case, always a sinus case," for each year the percentage of cures is increasing.

"YOU SEE, DOCTOR, MARY JUST DOESN'T SEEM TO ENJOY WINTER AS OTHER CHILDREN DO."

Swimming, life-saving lessons, surf-boat riding, marine nature study, gymnastics and story-telling are included in the free supervised play offered on the beach at Carpinteria, Calif., through the cooperation of the town and county.

A new type of traffic light recently displayed in London is composed of only one large main signal for red, green and amber, with smaller lights to show how much time has expired since the last change.

Some of the old hearing devices were on exhibit in Philadelphia during the recent National Hearing Week.



With the object of protecting water supplies in earthquake zones, a scale model of a 60,000 gallon water tank with sensitive devices for measuring the effects of shocks was installed in the seismology laboratory at Massachusetts Institute of Technology.

Photos by Acme

1635-1935: Three Hundred Years of American High Schools

IT WAS exactly 7 o'clock one fine October morning in 1734 when a boy of Old Boston set off for school. Trudging along, he saluted the passing watchman, the early police officer of Boston. Soon he caught up with a few schoolmates, and he and his companions had a merry time the remainder of the trip. Shortly before 7:30, the group arrived at the North Writing School, a simple wood structure.

This building was totally unlike any of our modern structures. In the earlier years of Boston's growth, more emphasis was placed on the imparting of knowledge than on the conditions under which the knowledge was imparted. All the scholars assembled in one large classroom. There were no blackboards, no maps or pictures, nor were there window shades. There were neither extra rooms for recitation nor special closet space for clothes; these were later improvements. In the case of the "double headed" schools, where the grammar and the writing departments were housed in the same building, the grammar or reading department was usually on the second floor.

On first entering the classroom, one saw a raised platform extending completely along one side. Near the door stood a double desk for the master and a large wooden armchair. A rail surrounded this sacred spot, thus giving an exclusive air to this section of the room. Next came single desks for the assistant teachers, who were called ushers.

THE pupils' desks were rough benches. The seats were without backs and were placed so as to face the light. It was not until years later that an enterprising schoolmaster, concerned with the visual welfare of his charges, considered turning the benches around so that the light might come from behind the scholars. The acceptable theory whereby desks were rearranged to permit a "left-hand light" first received prominence in the latter part of the nineteenth century.

The ink wells and writing pens were far from modern. The ink well was made by sawing one end of a horn and inserting a wooden bottom, while the other end was sawed at a place where pens could be inserted. Pens were made from goose quills thoroughly scraped by the master either at home or during the study periods at school. In fact the first consideration in the fine art of Boston penmanship was the making and repairing of goose quill pens.

Garments and storm accessories were hung on tiers of hooks between the windows. On rainy days the streams from the wet clothing ran along the floor and provided amusement for the scholars as they tried to keep their feet above the water. The offensive schoolroom odor caused by the drenched clothing was one of the problems of stormy weather.

THE children trudged to school in all sorts of weather since there were no bells or radio to announce the "No School Signal." Waterproof garments and rubber boots were unknown. The favorite foot protection was a pair of adult size, home-knit, wool stockings drawn over the shoes.

Heating of the early school buildings was a far different process from that of our modern structures. Heat was furnished mainly from the open fireplace. Later a large stove of cast and sheet iron was placed in the extreme corner of the opposite end of the room to give added heat. Although the master was responsible for the comfort of his charges, he used his powers in drawing up a schedule whereby the scholars of the grammar school assisted. The boys of the first and second class made the fires in rotation, and the boys of the third and fourth class had to sweep the floors. It was cause for great rejoicing when the boys reached the class where they could take turns in carrying wood, building the fires and raking up the coals at night so that there would be live embers in the morning. Those were the days of the flint box and steel before matches were known. These physical duties carried with them a most desired compensation, for the willing workers were dismissed thirty minutes earlier in the morning session.

However, the manual duties were not imposed on the scholars in the Latin School or in the girls' schools. The master usually employed a suitable person to light and extinguish the fires, sweep the rooms, open and close the doors and clear away the snow. Since no provision was made for him by the town, his salary was paid by a tax imposed on the scholars.

The old oaken bucket was never in greater demand than the old school pump. During the summer season the most popular part of the school, to the scholars at least, was the old wooden pump with its inviting dipper. As it was generally located at the rear of the building, it was a familiar sight to see the passerby pause to take a drink. Its constant use by the passing public created a problem for the masters. Frequent were the complaints to the authorities "as to the evils arising from the free use of the pump, belonging to the schools." This problem was finally solved by having each scholar carry his own drinking cup. On the final day of school it became customary for the last class in Latin School to celebrate its departure by kicking around the pails and cups until they were unfit for further use.

In those days, children attended school six days a week for almost the entire year. Nearly everybody lived in the city the year round, and vacations were not as meaningful as they are today. The special occasion to which a brief vacation was assigned would not be a red letter day for the present-day student, and one may only surmise what the children of today would think if the genie of Aladdin's lamp sent them back to the old hours of school study which existed in the seventeenth, eighteenth and the greater part of the nineteenth centuries.

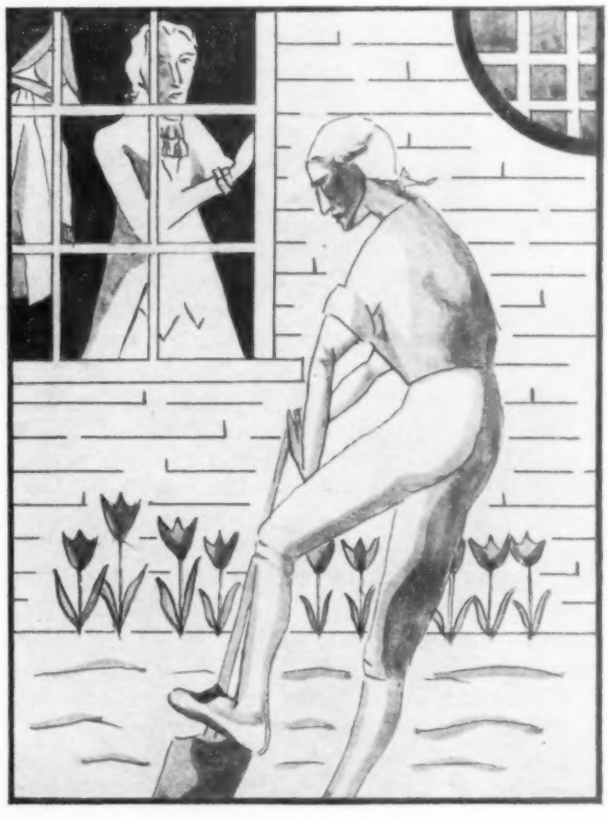
From April to October the school session began at 7:30 and continued until 11 a. m. The afternoon session started at 2 and continued to 5 p. m. From October to April, school continued from 8:30 to 11 a. m., and the afternoon session was from 2 to 4:30 p. m. But this was only part of the school day for the Latin School boys; many of them became "intermediate scholars," meaning that during the intermission between the two daily sessions they attended private schools. Here they pursued penmanship, reading and spelling, subjects not given at Latin School in the early days.

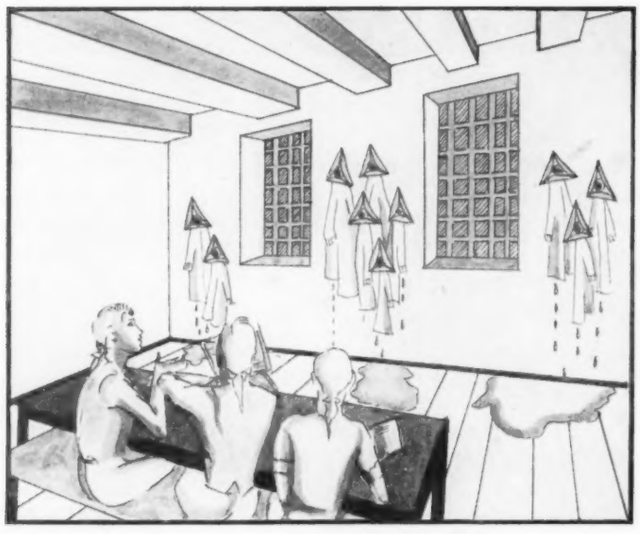
In spite of this intensive program, the vacation days were scarce. The town fathers believed that the scholars went to school to work. They certainly were given plenty of time in which to labor. A complete picture of school vacation periods is given in the official records listing "every Wednesday and Saturday afternoon, Christmas Day and Fast Day, Thanksgiving Day, and remainder of week, Day of General Election in January, one day in each year for general training when in Boston, Fourth of July, the week beginning first Monday in June, remainder of week after visitation of schools in August and the two succeeding weeks; and no other days, except by special vote of the Board."

So jealously guarded was this list that on one occasion when the school committee heard that several schools were dismissed without permission, a special meeting was called to condemn the masters for the unfaithful discharge of their duty.

The scholars of Old Boston school days had to pack more into one vacation day than modern youths would include in a much longer period. What a treat those school outings must have been! What a thrill was added when the first steamboat was ready to take passengers down Boston Harbor for a picnic! Those school outings had so much activity crowded into the waking day that they were always remembered in later years. Common occurrences in the lives of modern youths were red letter days for the school boys of Old Boston.

No wonder that extra days were always happy memories. However, it is interesting to note that these extra days were not granted until well after 1800. The year 1830 was well remembered by the scholars of that year. In September a day was allowed for the scholars to help celebrate the second centennial of the founding of Boston. The graduates as well as the pupils in school took an important part in the celebration. The section of former Franklin Medal scholars was the high light of the parade.





The next month was a most happy one for the Latin School boys. At the second meeting in October the committee voted, "that on account of the marriage, this day, of Mr. Leverett, principal of the Latin School, there be allowed a vacation of the two succeeding days to said school." If ever two persons received a unanimous vote of thanks from the scholars, they were certainly Master Leverett and his bride.

Boston was honored in 1833 by the visit of President Andrew Jackson. There were no more jubilant cheerers than the schoolboys, who were allowed three days off in honor of the occasion. The following year a most unusual holiday was granted. One of those hot July days was allowed as a vacation "on account of the ascension of Dr. Durant, with his balloon." This most unusual scientific demonstration caught the fancy of the city, and every one turned out for the sight.

WHETHER the members of the committee thought they were coddling the scholars or whether the opportunities for celebration did not present themselves, the next special day was not mentioned until 1848. Mayor Josiah Quincy, ever mindful of his early school days, considered the water celebration on Boston Common important enough to call for a holiday. Therefore, when the Cochituate water first gushed from the fountain in the Frog Pond, all the children were there to applaud.

One wonders what the Old Boston schoolboys would think if they could see Boston Common some hot July day filled with carefree twentieth century children "on vacation."

Yet it was not all work and no play for these children. Although their leisure was more limited and their pastimes were not as varied, it is doubtful whether they ever complained of time hanging heavily on their hands as does the modern child.

What would the child of today say if as a reward of merit he was allowed to bottle the master's cider when his lessons were finished? Yet this was an honorable and enjoyed leisure activity of the favored pupils of "Old Master Lovell," the famous Revolutionary period master of the Boston Latin School. This ingenious soul must have been an ancestor of Tom Sawyer, for he certainly could get more than his fence painted.

In the rear of Master Lovell's dwelling was a beautiful garden, which was cultivated in a most unique way and at no expense to him. His system was devised on the basis that it was a reward of merit to be permitted the privilege of working in the garden. One can imagine the enthusiasm of the chosen, lighthearted youths as they weeded and hoed on a hot summer day, or even as they sawed the wood for the master's fireplace, or better still bottled his cider. What must have been the later thoughts of this exiled Tory schoolmaster, who from the safety of a quiet Nova Scotian town recalled that some of these scholars were among the famous signers of the Declaration of Independence? A few of these privileged youths who were the later heroes were Robert Treat Paine, John Hancock, James Bowdoin, William Hooper and Harrison Gray Otis.

ANOTHER skilfully contrived device of the old masters in utilizing the time and energy of the young scholar was "to touch the bell." This sounds like a group game seen on a modern playground. Rather was it the highest distinction that the early Latin School boy could enjoy. It was an honor, limited to a few, to ring the hand bell announcing the beginning of the school day. One of the scholars who held this privilege, a frail youth, was the great American literary figure Ralph Waldo Emerson. This custom continued until the hand bell gave way to the large bell installed in the tower of the school, a gift from Latin School admirers.

The bell tolled at 7:25 and continued without pause until 7:30 a. m. At the end of the five minute period every boy was expected to be in his seat ready for work. The boys were always greeted at the opening of school by the master and his assistants, who stood on the sidewalk in front of the school door, dressed in cutaway coats. Each boy was formally saluted. At the last stroke of the bell, these honored gentlemen bowed to each other and repaired to their respective classes.

As the bell never responded to the rope pulley, it became necessary to select a boy to climb into the belfry and there hit the side of the bell with the gong. It was an exhausting bit of labor for five minutes, and no weakling could stand the physical strain. However, in compensation for this tedious task, credits were awarded on conduct or recitation lists. What a rush there was at the close of a marking period, when some boy, fearful of parental

wrath at falling by the wayside, would gleefully ask to be assigned to the bell in order that misdemeanors might be erased by the diligence of his bell ringing.

Although the boys of Old Boston did not have the organized sports that are frequent today, nevertheless there were numerous activities which allowed them ample opportunity to work off their surplus energy.

A FAVORITE sport of boys in the early days was running to fires with the hand engine, often called the tub. These engines pumped the stream of water by means of hand rails. The greatest thrill any schoolboy could enjoy was the privilege of helping to pump the engines, and after a full day at school, supplemented by a long run with the "Old Tub," the scholar was generally ready to go home to relish a steaming hot meal.

The boys' natural love of running was further satisfied in rolling their hoops. This pastime became so popular in the town streets that it grew to be a safety problem. When forbidden to use the highways, the boys retreated to the Common, where "driving their hoops," as it was called, became a popular form of exercise.

The early Boston School boys had their mischievous forms of sport as well. One of the most common was an occasional raiding of the gardens and orchards which surrounded so many of the houses on Beacon Hill. This was probably the way in which they secured their vitamins in those days.

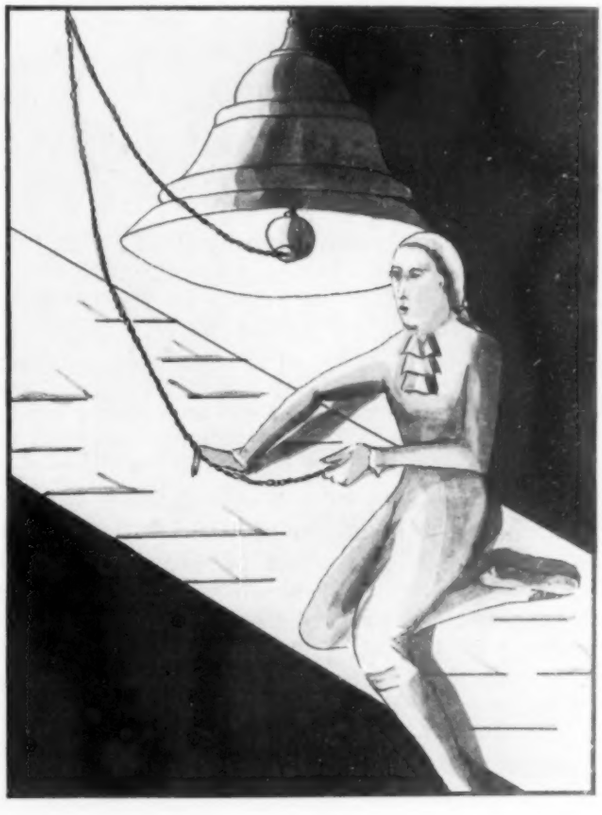
The girls of early Boston were not far behind the boys in their love of sports. One of their favorite pastimes was sliding down the icy slopes of Beacon Hill on carpet bags used as sleds. These bags were made of heavy Brussels carpet and were intended for a lifetime of wear. Naturally they never lasted long with that type of usage.

A fad which was popular at recess among the girls was the lifting game. It required six girls: one short, four much taller and a leader. The short girl stood in the center, and each of the four girls placed one hand under her arm and the other on her foot. At a command from the leader, all five inhaled to their capacity, and the center girl rose as high as her companions could stretch. The authorities soon put an end to this game, however, because it was considered dangerous.

In the early nineteenth century, gymnastics which had been imported from Europe became popular. This innovation made rapid strides, with Boston one of the leading centers. The Boston Latin School was the first public school to adopt this latest fad. Although the yard measured only 30 feet square, it contained a vaulting horse and parallel bars. Before and after school the yard was a beehive of action. Most of the boys had attended exhibitions of the adult clubs which had sprung up, and emulation of their feats seemed simple. During the recess, only lower room boys had access to the playground. As the recess was short, the boys upstairs were confined to the narrow passageway just off the room. They whiled away their short intermission by engaging in the strenuous game of tug-of-war. They pulled and puffed without stopping until the master shook his bright bandanna handkerchief out of the window to terminate recess.

BASEBALL was fast becoming a popular sport toward the middle of the last century. In those good old days the runner had to be hit by the ball to be retired. Stakes were used as bases, and foul balls were considered as hits. It was a hitting game pure and simple. Physical exhaustion generally ended activities, but sometimes as many as 70 or 80 runs were scored in a game. Probably the classic baseball story of that era concerned a memorable informal game between the Latin School and the English High boys. One of the Latin School stalwarts hit the ball so hard that it flew across Boston Common, rolled down the street and then bounced on board a horse car which carried it to the other end of the city.

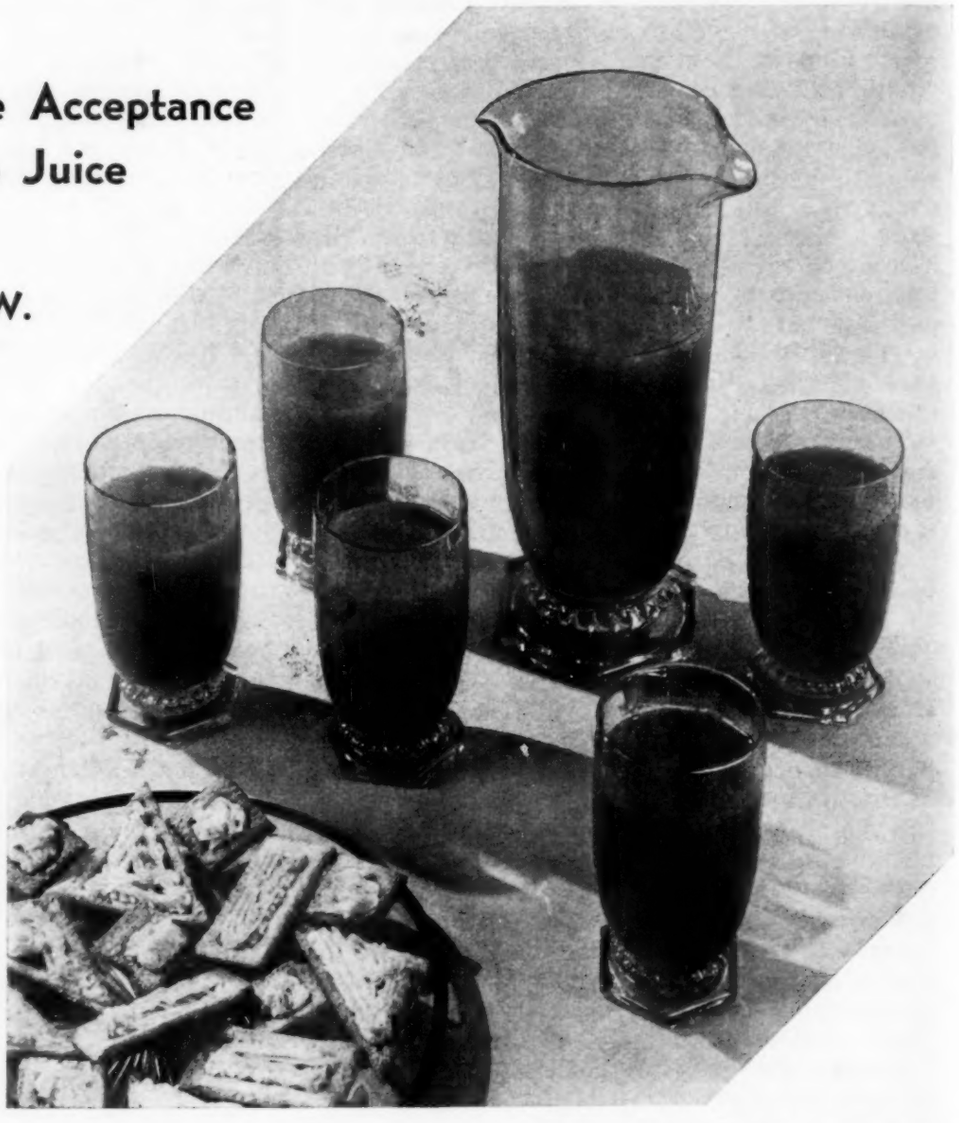
There is no scale to measure enjoyment. We can but wonder, when we think of the varied activities open to the modern child and of all the time he has to spend on his own amusement, just how he compares with the schoolboy of Old Boston in enjoyment of life.



A HOUSEWIFE LOOKS at

XVII. Committee Acceptance of Tomato Juice

By DORIS W. McCRAY



TOMATO JUICE, which was first recommended for infants, has since been adopted as a delightful beverage enjoyed by the nation. Practically every one finds that it is palatable and well tolerated and that it does not cause digestive disturbances. It furnishes minerals which are useful for providing alkali to the body fluids. Famed for its vitamin C, tomato juice has been found valuable also for its vitamins A and B; however, unless special precautions are taken by the canner, the vitamin content of fresh tomatoes may be reduced during canning. A decision of the Committee on Foods of the American Medical Association reads:

> Tomato juice shall retain in highest degree possible with the most efficient available manufacturing methods the vitamin content of the raw juice; products with materially reduced vitamin content shall bear appropriate and prominent declaration to that effect.

When a tomato juice is submitted to the Committee on Foods, a detailed description of every step in the preparation of the juice for the market is required, since the choice of the tomatoes, their prompt use after harvesting, the method of handling the tomatoes, the method of expression of the juice, and the treatment, canning and preserving of the juice affect the vitamin content of the final product. In a submission for acceptance, special attention should be given to the description of devices and methods adopted by the canner for protecting the natural vitamin content of the tomatoes. The Committee requires information as to the specifications and requirements for the tomatoes used and information as to whether they are pressed immediately after harvesting.

Canners have discovered an enormous public thirst for tomato juice, and they have spent thousands of dollars in research work that would lead to the production of tomato juice that is finer in flavor and color as well as richer in the natural vitamins of the raw tomato.

WHEN special claims are made for vitamin content, biologic tests for their substantiation made by a competent laboratory or investigator are required by the Committee. The tests must be made on market specimens, and claims cannot be based on the fact that raw materials used contain vitamins. A claim made by one manu-

the COMMITTEE ON FOODS

facturer of an accepted brand of tomato juice reads, "This tomato juice is a good source of vitamins A and B and an excellent source of vitamin C. Especially prepared for table use and as a vitamin C supplementary food for infant feeding. It furnishes 0.3 calories per gram, or 8 calories per ounce."

As already mentioned, several factors influence the vitamin content of the finished tomato juice. Various kinds of tomatoes differ in flavor, color, texture and vitamin content. Climate, soil, cultivation, irrigation or rainfall and other factors affect the quality and value of tomatoes. They have much finer flavor and a higher vitamin content when ripened on the vines in the sun than when picked green. Tomatoes must be just right in ripeness for production of good quality tomato juice. If tomatoes are overripe, the juice will have a less desirable flavor although the color may be good; if the tomatoes are underripe, the color of the juice will be poor. One canner tells me that tomatoes are packed in ⅝ bushel baskets and brought to the factory daily. There they are graded by a U. S. inspector and are paid for on the basis of grade, and the culls are discarded.

THE tomatoes are then placed in a soaking vat where the water is agitated, and they are carried by the water to a revolving washer where they are turned over and over numerous times under a strong spray of water. Extremely soft fruit is mashed by the spray and discarded. The tomatoes are next sorted, then washed and passed under steam jets, to loosen the skin.

Next they go directly to the juice machines, where the juice is gently pressed from the tomatoes without pressing the core of the tomato, for that would convey a bitter flavor to the juice. Around the juice machine is a jet of steam to exclude the air, as air and heat are deleterious to vitamins, flavor and color of vegetable foods. From the juice machine the juice passes through a glass lined pipe directly into a glass lined tank with nickel coils, where a small amount of salt is added to the juice and the temperature of the juice is brought to 165 F. In order to prevent the incorporation of air in the juice, the tank is filled from the bottom rather than from the top. The cans are filled, and they are closed and processed at a temperature of 212 F. At no time are the tomatoes cooked, nor is the juice subjected to a temperature higher than 165 F. before the cans are closed. Being exposed to the atmosphere affects the vitamin content of the juice. Heat in an open kettle affects vitamin content and color unfavorably.

Processing the juice after the can is closed is an important factor. Processing at temperatures above boiling will affect flavor, color and vitamin content. When cans are processed only long enough to sterilize the juice, then the color, the flavor and the vitamin content are not materially affected.

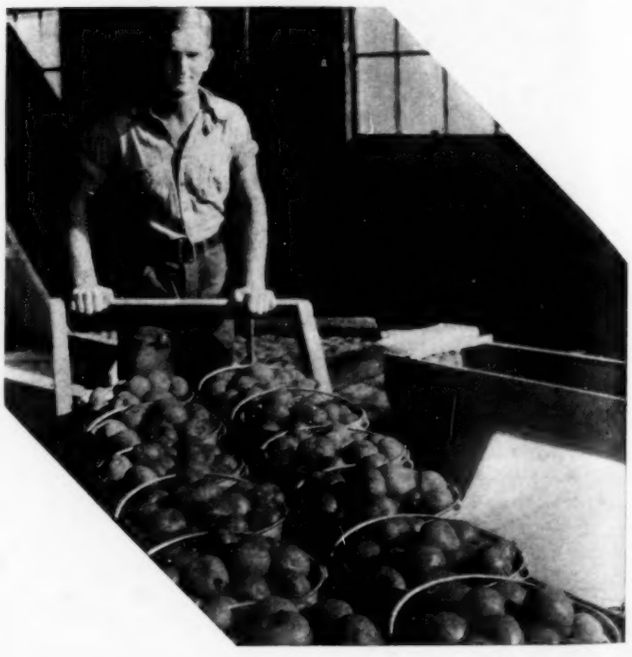
EXPERIMENTS in feeding test animals over a period of about a year showed that the particular brand of juice being used was fully as rich in vitamin C as juice expressed from tomatoes purchased daily in northern city markets and that one can of this brand of tomato juice is approximately equivalent in vitamin A to 1 teaspoonful of cod liver oil and approximately equivalent in vitamin B to two and one-half ordinary cakes of compressed yeast. The information just given regarding methods of preparation, processing, temperature and vitamin content applies to one brand of accepted tomato juice. Other methods and types of equipment are used which are just as efficient for the production of tomato juice with good flavor, color and vitamin content highly conserved. Read the label and the advertising of the brand of accepted tomato juice you are using to discover what vitamin claims are made for it.

Research carried on in one of the universities, under scientifically controlled conditions, showed that the pulp of the tomato juice was more important in furnishing vitamin A than the filtered clear yellow "serum" free from red tomato pulp. A certain amount of pulp must be present in a tomato juice to give it color, flavor and vitamin A content. There seems to be some difference in opinion as to the amount of pulp that is desirable in a tomato juice. It is certainly preferable to have the pulp divided as finely as possible. One company has perfected a process, which is protected by patents, that divides the pulp so finely that it is held in suspension. The process is similar to the homogenization that prevents cream from rising to the top of the can of evaporated milk because the globules of fat are so small. This patented process prevents the settling of the thick part of the tomato juice in the bottom of the can or in the glass after it is poured.

One notices considerable difference in the flavor, color, aroma and consistency of various brands of tomato juice. Exceptionally fine flavor is produced by quick handling from the field to the can, avoidance of exposure to the air and low temperature of processing. One canner states that the method of pasteurizing used in creameries is employed. Such methods conserve vitamins.

AS THE TOMATOES GO FROM THE WASHING MACHINE DOWN A LONG RUBBER BELT, THEY ARE PEELED, TRIMMED AND CORED.

A definite standard is set for color in canned tomatoes by the use of certain colored disks in accordance with Department of Agriculture rulings under the "Canner's Bill," an amendment of July 8, 1930, to the federal Food and Drugs Act. While this standard does not actually apply to tomato juice, any juice markedly lacking in color should be considered substandard. The U. S. Department of Agriculture definition reads:



AFTER THE TOMATOES HAVE BEEN CORED AND TRIMMED, THEY ARE TAKEN IN BUCKETS TO THE GRINDING MACHINES.

> Canned tomato juice, "tomato juice" is the unconcentrated, pasteurized product, consisting of the liquid, with a substantial portion of the pulp, expressed from ripe tomatoes with or without the application of heat and with or without the addition of salt.

This definition means that water shall not be added to tomato juice. The label must declare other added substances, such as sugar, seasoning, artificial color or preservatives; such additions are not necessary since tomato juice alone is delicious, and heat alone acts as a preservative when the product is fresh and unspoiled.

In the recent notices of judgment under the Food and Drugs Act, I found two cases of misbranded tomato juice. They involved interstate shipment of tomato juice in containers which were found to have a lower volume than declared on the label. Misbranding was alleged for the reason that the article was in package form and the quantity of the contents was incorrectly stated on the outside of the package. In one case a fine of $25 was imposed, and in the other case the tomato juice was released to the claimant on payment of costs and the execution of the bond in the sum of $250 and on the condition that it be correctly relabeled. No other cases of this particular Department of Agriculture release on notices of judgment involved tomato juice. However, a canned tomato purée was found to be filthy and decomposed; a tomato paste was found to be insufficiently concentrated; a case of fresh tomatoes was found to contain less than the labeled weight of 30 pounds; a shipment of tomato catsup was found to contain excess mold; a shipment of tomato catsup contained gum that had been added as a thickener, and the statement "tomato catsup" on the labels was false and misleading when applied to tomato catsup containing added gum. These instances are mentioned, since the violations are of a kind that might be possible with tomato juice.

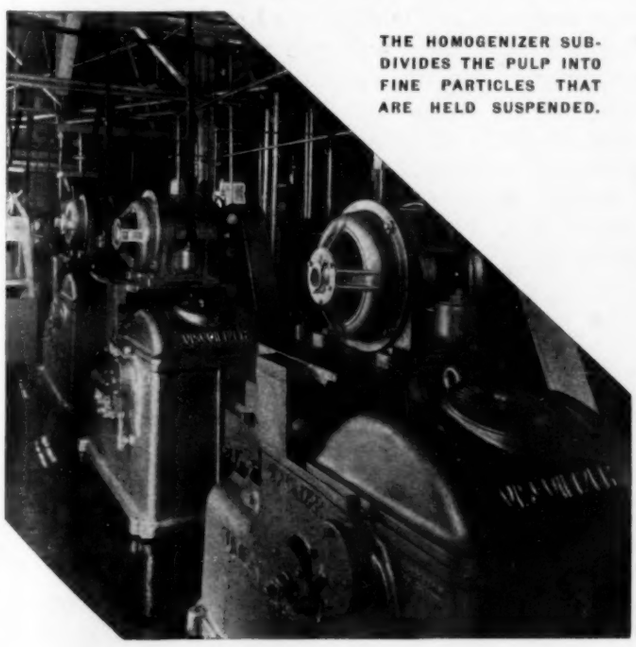
For many foods the Department of Agriculture has adopted administrative standards based on the best commercial practice, but such standards are merely advisory to the food officials enforcing the Food and Drugs Act. If the standards are backed by court decisions, which is true in many instances, they have practically the force and effect of law. The new Food and Drug Bill before Congress provides for the setting up of standards for many manufactured foods such as have been set up for butter. If a case concerning butter gets into court, the government has only to prove that the butter contains less than 80 per cent butterfat, a standard for butter established by an Act of Congress. Many food manufacturers are in favor of such

definite legal standards for many foods. The proposed law says in part:

> For the effectuation of the purposes of this Act, the Secretary is hereby authorized to promulgate regulations, fixing and establishing for any food a definition and standard of identity, and a reasonable standard of quality and fill of container: Provided, That no standards of quality shall be established for fresh fruits and fresh vegetables. . . .
>
> The following acts are hereby prohibited: The adulteration or misbranding of any food, drug or cosmetic in interstate commerce, and The dissemination of any false advertisement by radio broadcast, United States mails, or in interstate commerce for the purpose of inducing, directly or indirectly, the purchase of food, drugs or cosmetics.

In this connection, it has been stated by far-seeing business men, that if those in the advertising business could not accomplish an effective housecleaning, the government would do it for them. There are some advertisers who are not careful to see that their advertisements are based entirely on fact, although the vast majority of business men are careful in the wording of their advertising claims as well as in the wording of the labels, which are subject to federal scrutiny at the present time.

WHAT we may reasonably believe in the advertisements which we read depends on the integrity of the advertiser, the care with which he checks on details of fact, and on the ability, based on training or experience, to understand the scientific information on which he bases his claims. Some publications accept almost any advertisement, while other publications have set up their own standards for accepted advertising matter. The standards of HYGEIA are exceptionally high; often an advertiser is asked for proof of a statement which he proposes to make in his advertisement, and various concerns are not permitted to purchase advertising space, since their message would not be compatible with the standards for HYGEIA advertising, all of which must be acceptable to the Committee on Foods. In this connection, all advertising is carefully passed on before it is accepted for space in HYGEIA.



THE HOMOGENIZER SUBDIVIDES THE PULP INTO FINE PARTICLES THAT ARE HELD SUSPENDED.

Research reports from various universities are constantly adding to our knowledge of vitamins. When we are purchasing such illusive commodities as vitamins, we can depend only on authoritative information. The Committee decision on vitamin claims in food advertising reads, in part, as follows:

> Indefinite or general vitamin claims are vague, non-informative and misleading and do not permit a distinction between foods as sources of the respective vitamins. Vitamin claims shall stipulate the specific vitamin or vitamins present. . . . Foods may be considered relatively as fair, good and excellent or rich sources of vitamins. Statements of vitamin unitage in numerical quantities per gram (and per ounce if desired), where established, are to be encouraged on container labels and in advertising. The type of unit should be specified. These statements shall be so expressed as not to be misleading.

A laboratory report on one brand of tomato juice states that:

> The Vitamin A in Tomatoes is stable to manufacturing processes. It is insoluble and therefore found in the pulp of the tomato. Inasmuch as the bulk of the pulp is included in unfiltered juice, the tomato juice contains the major portion of the Vitamin A in the raw tomatoes.
>
> Vitamin B, too, is stable to manufacturing processes unless subjected to excessive oxidation. Tomatoes either contain no appreciable oxygen, or the amount is so small as to be insignificant in destruction of Vitamins B and C. We use an extraction process that is designed to avoid incorporation of air and take all possible care to avoid subsequent exposure to air.
>
> Tomatoes also contain Vitamin G, and there is no reason to conclude that it is affected in the process of manufacturing tomato juice.

There is some storage of vitamins in the human body. Vitamin A is stored largely in the liver, and there is some vitamin C deposited in the tissues. This stored vitamin reserve may be considerably below normal before there are any marked physical signs of vitamin deficiency.

Vitamins have been called the "spark plugs" of the human machine. They regulate or control many chemical reactions occurring in the body. The balanced diet including an abundance of the various vitamins is an aid to building resistance to disease.

EVEN though food may seem acid to the taste, this does not indicate what its effect will be in the body. Fruits and vegetables as classes of foods tend to exert an alkalinizing effect on body fluids. This is because they contain certain salts of alkaline metals, calcium, magnesium, sodium and potassium. Considerable quantities of organic acid combined with the alkaline minerals and the free acids, such as citric and acetic acids, are burned in the body to carbon dioxide and water, the carbon dioxide

being eliminated in respiration. This leaves the alkaline metals available for combining with acid or acid reacting substances present in the blood or body fluids. Foods that are rich in proteins, as meat and eggs, when oxidized in the body, produce as end-products some uric acid and sulphuric and phosphoric acids, which are neutralized by the alkaline end-products of other foods. This explanation will perhaps show why tomato juice is well tolerated by nearly all persons, although a physician, after examination of the individual patient, may direct special diets.

Experimental feeding of large quantities of orange juice or tomato juice to young men in studies made by Saywell and Lane at the University of California, as reported in the *Journal of Nutrition,* May 1933, shows that these juices tend to increase the alkali reserve above the normal for each young man. In order to be of scientific value, such experiments must be conducted under conditions that are carefully controlled and definitely known so far as is possible. The conclusion is that both orange juice and tomato juice are valuable for their alkalinizing effect on body fluids.

The citric acid of tomatoes is pleasant to the taste. There is no need for apprehension about acidity in the feeding of tomato juice to infants. This is substantiated by the statement of Dr. A. Hess, who summarized recent scientific observations as follows: "It may be stated without hesitation that tomato juice is fully as well borne by infants a few weeks or months of age as orange juice or lemon juice. . . . The feeding is two tablespoons for babies over three months of age. . . . It may be added that as much as six or eight ounces a day of this juice has been given to a baby under one year of age without producing untoward symptoms." This statement should not be construed, however, as meaning that a mother should give this amount without first consulting her baby's physician. Plain, unseasoned, fresh or canned tomato juice should be used in feeding infants, and when fresh juice is used, it should be carefully strained free from seeds.

I have been trying out a tomato juice which is ready to use as it comes direct from the can, and it flows readily through a nipple when bottle fed. It is rich in color and appearance and contains a large amount of pulp held in suspension, the juice having been produced from whole, cored, peeled, vine-ripened tomatoes. This juice has a full bodied consistency, and it does not separate *(Continued on page 184)*

These Teeth of Mine

(Continued from page 147)

its root does not melt away in this manner; it does not loosen and fall out, and while it is there, it holds the permanent tooth deep down in the jaw or compels it to come in crooked.

A dead temporary tooth, in my opinion, has no place in a child's mouth. Its menace of infection is usually an unwarranted health risk.

When a permanent tooth erupts, it too has practically no root; at this stage it is easily knocked loose or out. The root reaches full development in about three years. If, meanwhile, a blow or decay causes death of the pulp, development of the root of that tooth will stop. These peculiarities of root development are due to the fact that the dentin, which forms the major portion of the root, is formed by the tooth pulp.

If a temporary tooth is shed and no successor appears shortly thereafter, the dentist should be consulted and an x-ray picture should be taken. If no permanent tooth is there to erupt, some sort of device, perhaps a bridge or a form of orthodontic appliance, will be needed to maintain the space so that there will be normal jaw development and straight teeth. Later, a permanent bridge will supply the missing tooth.

The character of dental service that the child receives depends largely on his own behavior; in other words, on his mental preparation for the visit, as well as on how he is managed after arrival. The trouble with many youngsters is—their parents. The spoiled child is almost hopeless if the parent is in the room to serve as court of appeal and symbol of indulgence. The unspoiled child, too, is better left alone with the dentist.

Too often grown-ups are fond of a peculiar kind of boasting. They enlarge on the sufferings endured at the dentist's hands. Broach the subject, and they will vie with each other in producing ghastly details. Eyes abulge, children sit by and drink it all in. They see dentists in their nightmares, and the thought of going to a dentist turns their hands cold. In this day of cavity preparation under local anesthesia, the dentist never hurts the patient as much as does the patient's imagination prior to the visit. The worst part of it for the child, also, will be dread.

One mother, at least, has threatened her child with "If you don't behave, I'm going to take you to the dentist!" Since I heard that threat, I have always been ambitious to have such a mother for a patient.

As the time approaches for a child's first visit to the dentist, the mother should take him along when she herself has a dental appointment. She should treat it all in the most matter of fact way. When the child has seen her, two or three times, seated in *(Continued on page 190)*

There's a Snowy Mantle on the Mountains and the Housetops

Emil Goetz

THE SKIING SEASON IS ON IN CENTRAL SWITZERLAND. THE SPORTS TRAIN IN THE FOREGROUND CARRIES SKIERS TO CONVENIENT BUT BREATH-TAKING HEIGHTS.

Ewing Galloway

THIS SCENE IN RAINIER NATIONAL PARK IS EVIDENCE THAT, IN SKIING, ALL WHO GO UP DO NOT ALWAYS GLIDE DOWN.

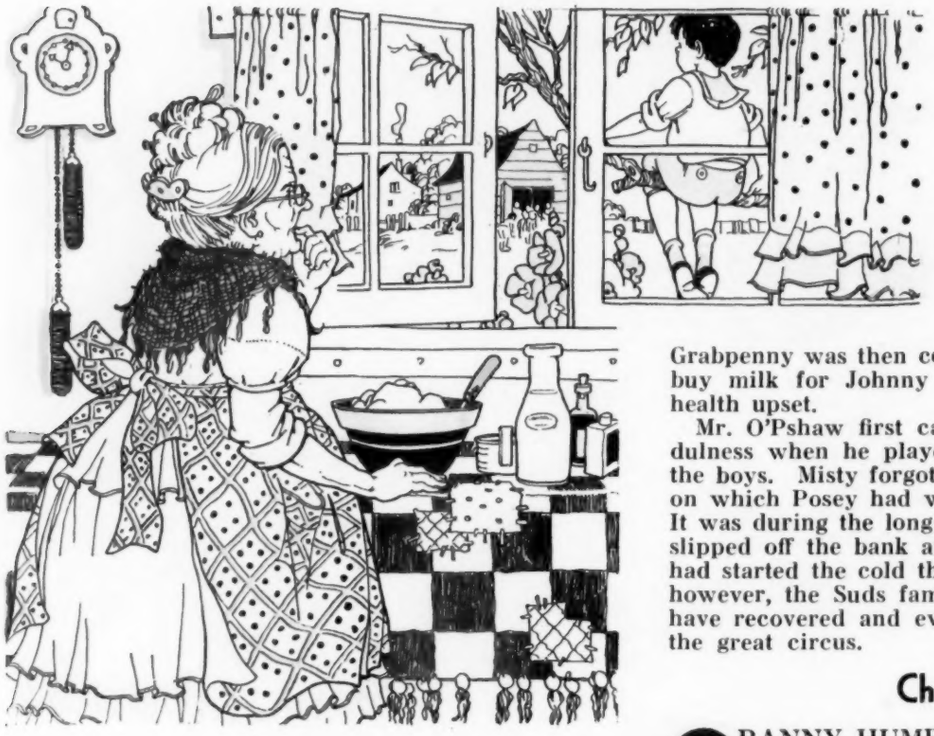
Engadine Press Co.

WINTER ABIDES IN A STREET IN THE OLD VILLAGE OF SAMADEN, SWITZERLAND. THE ALPS HOVER IN THE DISTANCE.

Ewing Galloway

A HOCKEY MATCH ON THE ICE AT COSCOB, CONN., IS A THRILLING SPECTACLE.

AMBROSE O'PSHAW, Detective



GRANNY HUMBER STARED OUT OF HER KITCHEN WINDOW. A WORRIED FROWN PUCKERED HER FOREHEAD.

By NELLIE G. HERRIMAN

The Story This Far

UNFORTUNATELY for the Suds family and, indeed, for the whole village, Ambrose O'Pshaw had a cold when he dropped in at the Suds' home to help solve the problem of why little Rosy was fading into a lily; the next day the whole Suds family had colds, and the circus which was to be held in their barnyard had to be postponed. Ambrose did not realize until it was too late that he had started an epidemic by going about the town instead of staying in bed and curing his cold.

However, he managed to solve the problem of Rosy's ill health and appearance when he noticed that roses in a garden must have the warm sunshine and that lilies like to be back in the shade; he saw that Rosy was not playing out in the sunshine enough. Even his cold served a useful purpose, for it helped him to solve the problem of why Misty Suds was so dull; when Ambrose had a cold, he felt almost as foggy as Misty with his adenoids.

These problems had been brought to Mr. O'Pshaw because he had always been known as a great thinker. There had been a time, though, when people had laughed at his slovenly house and appearance, but when he fell into the rain barrel and discovered he was dirty, he immediately set everything in order, and people began to consider him a real detective.

His first case was that of Henry Merrywell, who had been made lazy and careless by too much rich food. The detective sentenced most of the Widow Merrywell's pots and pans to the attic for twenty years so that Henry would have only simple, healthful food.

When Robin Grabpenny asked the detective to find out which of the boys had thrown baseballs through his windows, Mr. O'Pshaw found that it had been Mr. Grabpenny's own son, Johnny, who had lost control of his throwing arm when he was made to drink coffee instead of milk because it was cheaper. Mr. Grabpenny was then convinced that it was cheaper to buy milk for Johnny than to have his nerves and health upset.

Mr. O'Pshaw first came on the problem of Misty's dulness when he played a game of "kidnaper" with the boys. Misty forgot to give them the bits of paper on which Posey had written that he had gone home. It was during the long search for Posey that Ambrose slipped off the bank and fell into the river, and that had started the cold that started the epidemic. Now, however, the Suds family, the villagers and Ambrose have recovered and every one is looking forward to the great circus.

Chapter VI

GRANNY HUMBER was staring out of the window of her kitchen. A worried little frown puckered her pink forehead, and her blue eyes were filled with trouble. She was watching the boy who sat on a great branch high in the apple tree, gazing wistfully in the direction of the Suds barnyard. Even inside the kitchen, Granny could hear happy shouts in the distance and an occasional barking, cackling and baa-a-ing.

"Those boys are getting ready for the circus, that's what they're doing!" she thought. "And Johnny has been forbidden to go. Humph!"

Her eyes glinted angrily. Laying her glasses on the table, she brushed back her hair with her hand, turned down her rolled cuffs and straightened her apron. Then she opened the door and marched briskly into the living-room.

Mr. Grabpenny was adding rows of figures at his desk. The figures evidently pleased him, for his face was not quite so grim as usual. However, he scowled at the old lady's entrance and said bruskly, "I'm busy, Mrs. Humber. If you have business with me, it will have to wait."

"It will not wait!" He had never heard her voice so firm.

"Hurry about it, then."

"All Johnny's friends are having a circus over at the Suds home. It is all in good, clean fun, and I should like to see Johnny go."

"Yes?" Mr. Grabpenny's voice was most unpleasant.

"Yes!"

"I'm not in the habit of explaining my own affairs to others, Mrs. Humber," he said coldly. "However, since you seem excited about it, let me say that I don't care to have my son become interested in circuses just now. It would only lead to a demand to be taken to the big circus at Nottingham next week, and I've no money to waste on such foolishness. Let the boy stay in his own yard and practice throwing his ball; that should be fun enough for anybody."

"So you will force the child to lose two good times instead of only one, just so there will be no demand on your pocketbook!" Granny Humber spoke clearly. "You will ruin your son's life as well as your own."

"So you think I have ruined my life, eh?" He laughed disagreeably. "You probably have forgotten that I have more money than any one in the county."

"And fewer friends," the old lady finished his sentence for him.

"Friends! Bah!" Now go on about your work, Mrs. Humber. I should like luncheon an hour earlier than usual; I have an important business deal to attend to over in Nottingham." He rubbed a caressing hand over the papers on the desk; he alone knew how much money there was to be made in the deal, if it was handled just right.

Then Granny did a thing she had never done before. She sat herself comfortably in the best chair, folded her hands and began to rock.

"I shall do no more work in this house until Johnny is given permission to join his friends," she said calmly, and she began to hum just above her breath.

"You forget that it is quite easy to find new housekeepers, Mrs. Humber."

"Not at the price you pay me," she interrupted her song long enough to remind him.

Mr. Grabpenny roared, slammed down his pen, scattering ink over his papers and the top of the desk, and jumped up.

"Will you go about your work, Mrs. Humber?" he said in an awful voice.

"Certainly," she said mildly, "as soon as Johnny starts to the barnyard circus."

Mr. Grabpenny strode about in a circle, tearing at his hair and growling in a low voice. Mrs. Humber smiled gently at him and went on rocking and humming. He stopped still and glared at her; then he rushed to the door, threw it open and yelled, "Go on to the circus, Johnny!"

Johnny jerked his head around in astonishment but did not waste time wondering at his good fortune. He began to scramble down from the tree, and his blouse was torn from top to bottom in the descent.

"Now, I hope you are satisfied, Mrs. Humber!" his father snapped. "He has already torn his blouse; no doubt his clothes will all be rags when he comes home again!"

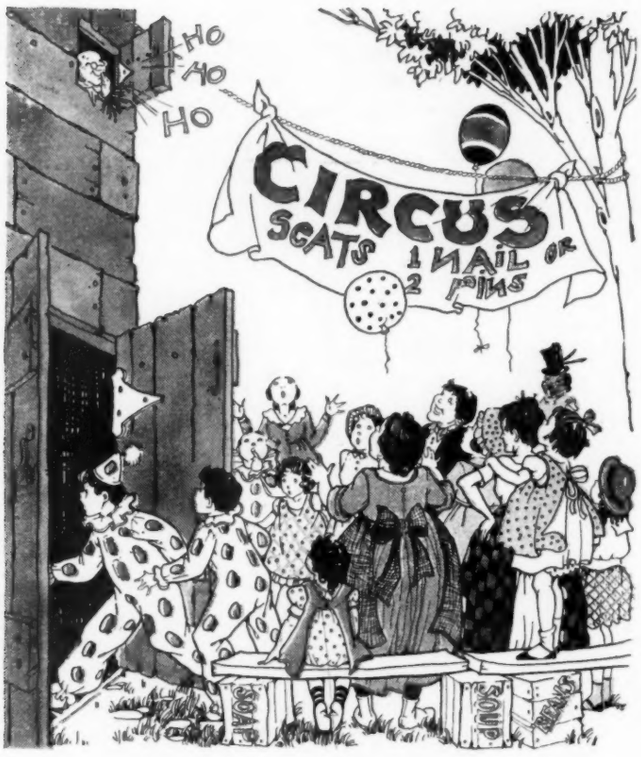
"I hope so!" she said. "I'll enjoy mending them." She left the chair and went back to the kitchen.

Mr. Grabpenny's morning was spoiled. As if the trouble about the barnyard circus were not enough, he received a message a few minutes later telling him that the business deal was called off. He was quite upset, and, strangely, he blamed the circus for all his misfortune.

"I suppose Johnny will be full of all sorts of ideas when he comes back," he thought. "Who knows what those boys will put into his head? A good, cheap game of ball can't lead to expensive amusements. Play acting! I suppose he will ruin every thread he is wearing, and then Mrs. Humber and the boys will take his part if I scold him. If she had only let well enough alone! Those boys will probably be in mischief up to their eyebrows, and I'll never know just what happened. Wish I could be a mouse for a while. I'd like to watch and see—Humph!" He looked toward the Suds barnyard, and there was a crafty gleam in his eye. Taking care to make no noise, he slipped out the house.

In the meantime, real excitement prevailed in the Suds yard. Crates of "wild" animals stood about the great ring that had been scratched in the dust, and huge snakes writhed across the top of a big box. Close examination showed their resemblance to long black stockings, stuffed with hay. The patient cow which furnished milk for the Green family had become a rhinoceros when an extra horn had been fastened by means of string to her forehead. Henry Merryweather's pet pig slept peacefully inside a stout cage, which bore the label "Wild Boar—Dangerous." A Shetland pony's sides had been beautifully decorated with stripes of white; even Misty guessed it was a zebra.

THERE WAS A LOUD, SPLINTERING CRASH, AND THE GOAT DASHED INTO THE YARD, WITH PART OF THE BARN DOOR ON HIS NECK AND A SMALL NEGRO BOY ON HIS BACK.



THE VOICE ROARED, GASPED FOR BREATH, ROARED, DIED AWAY IN CHUCKLES, THEN BEGAN ALL OVER AGAIN WITH A LAUGH SO MERRY THAT THE PEOPLE BELOW LAUGHED TOO.

A swarm of boys were occupied just then in a stall in the barn. Many cries, thrashings about and bumpings warned Mrs. Suds, who was listening from the back porch, that they were having a lively time. Rosy was running about from cage to cage, and her mother called, "Do run and see what those boys are doing, child!"

Rosy ran and peeped through the barn door, and came back giggling.

"They're trying to put a saddle on Murphy's goat, and he keeps butting them into the manger. They are getting ready to tie him with ropes now, so they can put the saddle on him." Her cheeks were almost red from sunshine, fresh air and good fun. She tossed her hair from her eyes and danced on her toes.

Mrs. Suds laughed. "Dear me, why do they want a saddle on that goat? No one will ever be able to ride him."

"Posey is going to ride him for the last act. He calls him his bucking broncho."

"Well, I wish him luck!"

By this time quite a crowd had gathered. Almost every child in the village who had no part in the show had come to the soap box at the gate, laid down a nail or two pins, and perched on the fence or on one of the planks laid across boxes to serve as seats. Several grown-ups had also arrived, and their smiles were as wide as those of the children. Ambrose had come early and was now helping with the goat. Mrs. Suds intended to be there in time to see all the show. Although many of the people were quite old in years, it was noticed that they all had young faces; no doubt because they occasionally enjoyed good fun in the open air.

A great noise announced the beginning of the show. The barn door popped open, and Posey came out, dressed in the brightest clothing he could find, huge boots and an enormous black hat. He warned them to beware of the jungle beasts and not to feed the elephants, which had not yet appeared. Then he blew on a horn and cracked a whip, and the show started.

There is not time to describe all that followed. There was such a display of fancy riding on bicycles, ponies and wheelbarrows, of tightrope walking, which would have been more dangerous if the ropes had been higher, and of trained animal acts, that it kept the audience busy watching them all. The clowns gave a really fine exhibition of tumbling and climbing. It was learned afterward that they were the four Smith boys who had lived carefully and exercised outdoors every day, even when it was a bit stormy, so that they could some time be real clowns in a real circus. A little white dog, which George Hopkins had trained by kindness and much hard work, won great applause and was so proud that he began his act all over again. A large white rooster strutted across the barnyard, seeming to know that the big turkey feathers that were fastened to his tail made him look just a little like an ostrich.

Then free refreshments were served, as had been promised. There had been much argument about the proper thing to serve. Some of the boys thought their mothers would make candy and popcorn for them, but the four Smith boys objected immediately.

"No, indeed!" they said. "Who wants to eat such trash as that right in the middle of the morning? Why not give the audience apples? Then no one can say we don't know what is good for people. And besides, we will want to eat, too; and how can we make a success of the second part of the show if we are full of candy or something? Apples never hurt anybody. They are easy to get, too."

Their arguments finally settled the question, and baskets of red and yellow apples had been put in the cellar of the Suds house so that they would be cool and delicious. The entertainers were glad they had decided to use apples, for every one, from the youngest to the oldest, took one and seemed to enjoy it.

Then the show began again. Misty, the wild man, came raging down from a tree, making a terrible noise and gnawing hungrily at a bone. Carrots Green, the lion tamer, brought out a cage full of cats, including nice plump pussies and thin old alley cats; but he was most unsuccessful in taming them since they were determined to eat each other alive. Jimmy, with fresh meat in his pockets, ran from the barn with a cluster of poodles, police dogs, bull dogs and just plain dogs galloping eagerly after him.

His shrieks, "Save me from the wolves! Save me from the wolves!" were pitiful to hear.

It required almost the whole circus crew to exhibit the elephant, for constant prodding was needed to keep him awake. The crowd laughed, for they recognized the delivery man's ancient black horse, which had slept almost all its life. His master was a great talker, and Dobbin had spent many a long hour standing in the street while his driver discussed events of the day with any one who would listen. So Dobbin had whiled away these hours in a doze, and he found the habit hard to break. The long cloth that hung from his chin now did not disturb his slumbers, but the proddings of the boys did trouble him slightly. Johnnie poured cold water on him, but he only twitched his ears. When the proddings became too severe, he shook his head a little but did not open his eyes. It is to be feared that the elephant act was a failure.

At last came the crowning act. The audience leaned forward in breathless interest. The performers fastened uneasy eyes on the barn door. Inside the barn there was a sudden bumping, an angry "Baa-a, baa-a!" and Posey's shrill, "Whoa, deah, you stan' still, you ol' billy goat!"

Jimmy's voice could be heard above the tumult, "Now, do be careful, Posey; we don't want you to be hurt!"

There was a loud, splintering crash, and the goat dashed into the yard, with part of the barn door on his neck and a small Negro boy on his back. The goat surveyed the crowd for a moment and then went into action. Posey rolled far across the yard before he knew he had left the animal's back; the scraps of barn door clattered to the ground, and Billy was free. Posey found the saddle in his hands when he stopped rolling.

Head down, eyes glaring, Billy started down the row of cages; and in time the imprisoned animals found themselves free. The cats resumed their battle, and their snarls and hisses added to the din. The "wolves" chased one another gleefully about, became involved in the cat fight and scurried howling to safety. The "ostrich" mounted the fence and crowed lustily. The "rhinoceros" made a dash in the general direction of the Green's barn. Having completed the destruction of the cages, Billy attacked the empty benches. The spectators, with frantic squeals or delighted laughter, had hastened to safety on top of the fence or on the Suds' back porch.

Dobbin shook his head when Billy struck him the first time, but at the second blow the rickety horse became wide awake, took one look at his tormentor and then started down the street in a jerky gallop. Billy's hard forehead crashed just once against the side of the "zebra." That dainty little animal lifted a hoof, and Billy received a blow that decided him against any more games. He trotted into a neighboring yard, tore down a line of clean clothes and walked primly back to the barn, chewing an undershirt. Johnny ran into the barn and shut the goat in a stall.

The audience had been far from quiet all this time. The performers were shouting directions at the goat in an attempt to stop his destructive work; girls and women were giggling or squealing; the owner of the clothes line pleaded with the goat "to be nice," and all the others clung to the fence and roared.

After the uproar in the barnyard died away, they became conscious of another voice. It seemed to come from the hay mow, from which a small window opened on the yard below. The voice roared, gasped for breath, roared, died away in chuckles, then began all over again. It was a laugh so merry that the people below caught the infection and began to laugh again.

"Oh me, oh my!" sighed the voice. "I never saw anything so funny! Oh me, oh my!"

"Who can it be? Why is some one in the hay mow?" the boys asked one another.

"We had better go up and see who it is," Johnny suggested. "It can't be any one dangerous, with a laugh like that!"

"Don't bother to come up; I'm coming right down!" called the voice. "Ha ha! Ha ha ha! Oh me, oh my!"

At last a figure came through the open barn door. It was bent over with mirth; but it lifted a flushed face, and the crowd gasped, "Mr. Grabpenny!"

"Father!" Johnny cried. "Father, why were you in the hay mow?"

"I wanted to see whether you got into any mischief at the circus, old crosspatch that I was," the man said. "No wonder you wanted to come! Oh me, oh my!" He bent over in laughter again.

"Robin Penny, you've been needing a good laugh for a long time," Mrs. Suds said.

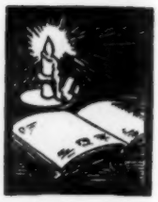
"Indeed, I have," he agreed. "How good it is is be called Robin Penny once more. Strange how a man can make a fool of himself for so many years. I've done nothing but save money; now I'm going to begin spending it. Mr. O'Pshaw, you keep your eyes open! Can't you tell me where to begin spending?"

"To be sure, I can." Ambrose replied briskly. "You might start by having Misty's adenoids removed."

"A fine suggestion," said Robin Penny. "We shall drive into the city this afternoon, if his mother wishes, and have them out in the best hospital we can find. That will give Misty plenty of time to get well before the big circus next week. You," he waved a hand to include the whole crowd, "are invited to go as my guests. Circuses can do a person a great amount of good. Ha ha ha! Oh me, oh my!"

[THE END]

New Books on Health



PARENT AND CHILD

By Edgar Schmiedeler and M. Rosa McDonough. First Edition. Cloth. Price, $2.25. Pp. 301. New York: D. Appleton-Century Company, 1934.

THIS VOLUME is written particularly for the Catholic parent for whose special needs, it appears, no such book has previously been available. It is published with the approval of dignitaries of the Catholic Church.

In the Catholic Church particularly, the emphasis on the responsibility of the training of the child is placed with the parent and the home. A reading of the book does not indicate, however, that there is a great difference in the necessary considerations entailed in raising a Catholic child and in raising children in any other well ordered home.

The authors discuss all the usual aspects of physical development, discipline, punishments and rewards. In the chapter that deals with moral development there is a reference to the fact that two observers were able to find that children who attended Sunday School were less likely to cheat than those who did not attend Sunday School. There is also a slight emphasis on the Catholic point of view concerning unchastity. In the chapter on religious education in the home, considerable stress is placed on Catholicism. Otherwise this volume is much like any other book already available on the relations between children and parents.

MORRIS FISHBEIN, M.D.

DOCTOR THINKRIGHT

By Clarence Hawkes. Price, $1.50. Pp. 157. New York: Thomas Y. Crowell Company, 1934.

THE HERO of the book is a physician who has retired from the practice of medicine and becomes a self appointed healer of psychologic ills, a sort of physician to the soul. He does many things which no physician in real life would dare to do; but, of course, his efforts work out all right and every one lives happily ever after, including the incorrigible child, the neurasthenic childless wife, the inebriate, the misanthropic miser, the sanctimonious exploiter of his employees, and even the prostitute. The latter is discovered to be the daughter of the woman whom Dr. Thinkright would have married had she not run away with another man on the day the wedding was to take place.

The theme of the book is the same as that of Dickens' "A Christmas Carol" and of Jerome's "Passing of the Third Floor Back," and the whole work is reminiscent also of "Pollyanna" and the late lamented Professor Coué. If one has an hour to waste, the story might be diverting, but it is light reading at best. Any one who takes it seriously and expects his doctor to emulate Dr. Thinkright will be fortunate if he is disappointed.

W. W. BAUER, M.D.

THE SOCIAL ADJUSTMENT OF THE TUBERCULOUS

By Beulah Weldon Burhoe. Paper. Price, 50 cents. Pp. 55. New York: National Tuberculosis Association; or state tuberculosis associations, 1934.

THIS STUDY is divided into two problems; first, the examination of the facilities for the social rehabilitation of the tuberculous in the United States, seeking to discover the adequacy or inadequacy of these facilities, and second, the indication, in the light of collected data, of such modifications of or additions to existing procedures as would increase their effectiveness.

Brief descriptions are given of the work of such early rehabilitation projects as Eudowood Farm Colony, Phipps Institute Workshop and Reco Workshop and of such existing extrasanatorium facilities as Altro Work Shop, Tomahawk Lake State Camp, Olive View Convalescent Camps, Potts Memorial Hospital, Half Way House, Boston Workshop, vocational rehabilitation, employment bureaus, Minneapolis program and Bellevue Settlement.

Study of the various projects reveals that they have begun with a form of solution and tried to fit individuals into the solution. The pitfall is one of oversimplification. The wiser program, according to the solution worked out in this book, would begin with the individual and on an analysis of his needs find for him his proper niche. This would entail consideration of the five major points in the suggested program: social analysis of the patient, education, temporary employment, housing and placement.

DOROTHY M. BAKER.

THE HEALTH AND HAPPINESS SERIES

By S. Weir Newmayer and Edwin C. Broome. Cloth. New York City: American Book Company, 1934.

HEALTH IN GOOD-HABIT LAND. Pp. 155.

PATHWAYS IN HEALTHLAND. Price, 72 cents. Pp. 222.

HIGHROADS TO HEALTH. Price, 84 cents. Pp. 326.

THESE BOOKS are aimed for the elementary grades and are planned to teach pupils habits of good health. The authors are associated with the schools of Philadelphia. The books are well prepared, nicely illustrated, printed in easily readable type, and are quite sound as to their point of view. Of course, they do not tell the whole truth regarding either alcohol or tobacco, or even regarding tea and coffee. They tend rather toward teetotalism, but aside from this point of view there can be no complaint regarding their complete rationality.

M. F.

[NOTE.—Books reviewed or mentioned on this page, other than those published by the American Medical Association, should be ordered from booksellers or direct from the publishers. They may not be ordered through HYGEIA or the American Medical Association.]

SCHOOL AND HEALTH

A Department Conducted by J. MACE ANDRESS, Ph.D.

67 Clyde Street, Newtonville, Mass.

The Classroom Teacher at Work

II. HEALTHY CHILDREN—THE TEACHER'S GOAL

EVERY good teacher has a clear objective of what she expects to accomplish. Without such an objective she is unable to guide her teaching effectively. Well defined teaching purposes alone make it possible to measure results.

If we go back to the beginning of health education, we find that the teacher's goal was to get children to learn facts so as to recite them in class or record them in an examination paper. Some of those facts, such as the names of parts of the body, had little or no bearing on good health, but teachers had a crude and childlike faith that in some miraculous way a knowledge of facts would be converted into good health. Within the last decade or so, much emphasis has been put on the formation of health habits, but even these have proved unsatisfactory as health education aims when they have not resulted in more healthful living. At times we have overemphasized the clearing up of physical defects and have exalted the work of the school physician, but this too has led to disappointment. A child may be free from physical defects, may not have diseased tonsils, carious teeth or other bodily handicaps and yet be distressed by fears and shrink from facing difficulties.

Does this mean that the teacher should not have in mind the gaining of knowledge, the formation of health habits and the removal of physical defects as a legitimate part of her work? Not at all. These activities are all desirable, and the good teacher today does all she can, directly and indirectly, to see that they are initiated and properly guided. But these objectives are incomplete. What the good teacher today is trying to do is to bring to bear on her pupils all those influences which will make them healthy children.

Oddly enough there had been little thought until the last few years as to what health really meant. Physicians had spent their lives in the study of disease. Their training, books and practice were concerned with illness. When a patient presented himself to the doctor, he did so only to be examined for some pathologic condition. There were many standards relating to disease but few concerning health. Even today those standards are in the making and there are differences of opinion as to what constitutes a healthy child.

However, there are a number of conceptions which have been accepted without serious question by medical experts and educators. They agree that health education can be promoted only by emphasizing all aspects of health: physical, mental, social and moral. The ideal of health is not mere freedom from pathologic symptoms and physical defects but the realization of the highest physical, mental and spiritual possibilities of which the individual is capable. Health does not mean merely enough strength and vigor to avoid a sick-bed but abundant energy for all the activities of life and a reserve for unusual strains. A healthy person has enough energy so that a reasonable amount of play and work is stimulating rather than fatiguing. His physical growth is normal. He sleeps well and recovers satisfactorily from fatigue.

Good health also implies more than physiologic health. It involves the development of healthy personalities. A healthy personality is one which enables the individual to meet the problems of his life with success and satisfaction. Such a child is able to concentrate his attention on the matter before him. He does not "day dream" so much that he fails to meet actual situations. He is happy, cheerful, self reliant and courageous. This, in brief, is the picture of the healthy child!

Health Teaching in February

FEBRUARY is conspicuous among the months of the year for its celebration of the birthdays of two famous Americans, Washington and Lincoln. In most schools there are programs of music and public reading or speaking. The school work in such subjects as history, English, drawing and hand work recognizes the opportunity for expression of thoughts and feelings about these great American heroes.

This interest in Washington and Lincoln is not confined to the school. In the case of the first there is a public holiday. Newspapers, magazines and the radio participate in the celebration. Everybody inside and outside the school has his attention focused on Washington and Lincoln.

Here is a unique opportunity for some effective health teaching. While the community and school interest is directed toward these statesmen, it becomes an easy matter to show how important it was for them to have good health and what they did for the conservation and improvement of their health.

Both these men had great responsibilities and were subject to unusual strain. If they had not enjoyed good health, they might well have broken down under pressure, and the history of America might have taken a different course. In the study of the lives of these men, boys and girls may find the various influences that made for good health. Both Washington and Lincoln were fond of the outdoors, and both faced their problems with courage.

In idealizing these men, there is a grave danger in suggesting that they were without faults in all their health habits and attitudes. Both of them at times violated some of the common laws of hygiene. Washington probably hastened his death by his carelessness in neglecting a cold. It was said of Lincoln by one of his closest friends that "melancholy dripped from him." It is evident from his biography that he was in some respects rather maladjusted.

The fact that Washington was bled by his physicians during his last illness and the fact that both Washington and Lincoln had smallpox suggest a different status of medicine and public health in the days in which they lived.

The biographies of these two great men offer many suggestions in health teaching.

To Contributors: — *The editor of the School and Health Department will be pleased to receive articles dealing with the solution of concrete and practical health education problems in the school. Articles must not exceed 1,000 words in length. Stamps should accompany manuscripts to insure their return if rejected. All articles accepted will be paid for at regular rates. Address Editor of School and Health Department of* HYGEIA, *67 Clyde Street, Newtonville, Mass.*

SOLVING HEALTH EDUCATIONAL PROBLEMS

THE REPORT COMES HOME

ALICE STONE JOHNSTON
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HOMESTEAD, PA.

Modern mental hygiene emphasizes the great need for children to cultivate wholesome attitudes. Unfortunately a misunderstanding of a child's report card is often the cause of serious maladjustment. Miss Johnson suggests how the report card is to be interpreted by pupils, teachers and parents in the interest of mutual understanding and mental health.

THE REPORT card is a vital factor in the life of the child in school. It is responsible for so much of joy and of grief that every care should be taken to understand it. Doubtless it is necessary that a child work with a realization of having to account for his effort. Without a record, he would neither know nor care where he stands. Even to remove the competition furnished by the report system would tend to destroy the incentive to work. The immature mind of the growing child seldom learns to study for the pleasure of acquiring knowledge.

However, both child and parent seem to view the report from an ill advised angle; they attach thereto more importance than it deserves. What it actually represents is a quite inconstant value. Being in the class, the child has opportunity to understand the marks in a measure denied to the parent. Unfortunately, the child is incapable of explaining what he knows about it. His version is usually either overrated or discredited. If properly evaluated, the report card would be invaluable.

A report may be affected by numerous vitally important factors; the grade may be high or low for innocent reasons. Some children have marked ability in written work but are unable to recite; others are affected in the opposite way. Since a proportion of the grade is derived from both sources, it is obvious that lack of ability in either field considerably lowers the record. Such a handicap is frequent not only among children but also among adults. It lends itself to remedial measures. While it lowers school grades, it does not hinder actual learning.

A child may be feeling indisposed on the day that a test is given and do less than his usual standard of work. If he has been absent from school, a test may feature a part of the work in which he is weak because he missed the explanation presented during his absence. Such grade difficulties are temporary and will right themselves before the next report is due. If a low mark prevails for some time, it is necessary to investigate and discover a remedy. The child may be in a class for which he is unprepared; such a condition requires either a replacing or special tutoring to bring him parallel with the requirements. It is harmful to allow him to struggle along unaided. Often a little individual attention from the teacher will bring to light the difficulty and adjust it.

All school work and particularly responses in oral exercises are immeasurably swayed by small factors which the home can control. A child is self confident before others largely in proportion to his health, appearance and personal or family reputation. Many homes could be more careful about all these factors. A sick child cannot do good work; it is his right to be relieved from headaches, colds, overtiredness and dental trouble. If such things are neglected, the report card will register the fact. Early habits of neatness and cleanliness make even the plainest clothes presentable, while carelessness will detract from the service of the most expensive wardrobe. If a child can be proud of himself and his family, he is unafraid to face the world. Many a child is carelessly burdened with an inferiority handicap that need not exist.

Inaccurate estimate of the report card results in frequent unpleasant scenes at home. There is a tendency to notice lowered grades and to overlook those that have been raised since the previous month. The father of a ninth grade boy came to school excitedly demanding to know why "Mickey catch himself only a 'B' in English when always before he catch 'A,' and him need English." He had already given Mickey a severe beating as a result. The boy had earned a higher mark in two subjects while the English slipped back; no credit was given by the father for the better grades. Such an unreasonable attitude creates fear of taking the report home.

A child is often thoughtlessly forced into habits of deceit and prevarication as a means of self preservation. He may alter the faulty mark and correct it after the parent has signed the card. He may pretend to lose a report and persuade a friend to sign it. Still further, he may invent a self justifying alibi which misrepresents the teacher or the school system. Reasonable punishment for neglect of work would be fair and gamely received, if the situation were understood; but if telling the truth about it results in punishment disproportionate to the offense, the child cannot be blamed for avoiding the truth. Even a scolding without a rational discussion of the facts never can accomplish anything worth while. If the parent could understand the need for a friendly, intelligent consideration of the report, the child would be eager to take it home, and the report would be a true benefit to parent and student. If the school authorities must be consulted for the facts in the case, the parent should go to the teacher or principal in an attitude of unbiased inquiry and avoid needlessly embarrassing the child by petty displays of temper. Usually, possession of the facts alters the preconceived opinions and leaves the parent awkwardly apologetic.

A family of three daughters manages the report on a pleasant financial basis. If the grade is raised, the child receives a dime as a reward; if it is lowered, half as much is forfeited. The mother has a quiet way of offering such remarks as: "I notice that there is something to complain about the teacher when the grade is poor, but she is wonderful when the mark is high. Let us be careful at least to divide the blame fairly." When reports come to that home, it is a festive occasion of spirited conference and new resolve.

The report comes home! It is a precious link between the parent and what his child is doing with the first attempt to make his way in the world. There lies the foundation of habits, methods and accomplishment; it must support all that he may later try to do. The wise parent will remember that the child is only a beginner in the work that lies ahead; more than anything else, he needs to be guided. Generous with praise, fair with reproof and patient in counsel, the parent is the one whose attitude makes the report worth while.

ENJOYING TRIPS TO THE DENTIST

HARRIET FITZGERALD
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BERKELEY, CALIF.

Visits to the dentist are usually dreaded both by children and by adults. Miss Fitzgerald presents concrete illustrations as to how this attitude of school children may be replaced by one of hopeful anticipation. It is a story of genuine achievement.

IN THE life of almost every man, visits to the dental office are incidents which are not anticipated with pleasure. The fear of the dentist, the dread of the drilling, and the painful extraction of wisdom teeth are all experiences which are vividly recalled and never forgotten.

This fear seems to be handed down from parents to children, although in the age in which we are living there is little need to fear the dentist, for dental science has advanced to the stage where painful operations can be reduced to a minimum.

Realizing this, we decided to teach children the importance of early care of the teeth. There were about 3,000 children in the kindergarten and in the first, second and third grades in the elementary schools in Berkeley. Our plan was to make children, through education, realize the importance of their teeth.

The dental hygienist visited these classes and conducted a socialized discussion regarding the teeth. This brought forth great interest and enthusiasm, although it took the skill and ingenuity of the dental hygienist to keep order. Children of this age are especially interested in their teeth that become loose, fall out and are replaced.

After the discussion, it was a simple thing to get children to have their teeth examined. The dental hygienist made the examination with the aid of a mouth mirror and explorer, and children were eager to have it done. Every child who had clean teeth and good teeth was given a badge certifying that fact. The other children were given notices urging their parents to take them to a dentist. The teacher in each classroom was presented with a "Good Teeth Thermometer" indicating the number of children who were all right and the number who needed attention. As each child went to the dentist and had his mouth put in perfect condition, a certificate was sent from the dentist to the teacher, and the thermometer advanced one notch for each child who had all the defects corrected. This certificate was then forwarded to the dental hygienist,

who awarded the badge to the child. "Good Teeth Banners" were awarded to all classrooms in which the thermometers reached 100 per cent.

After examinations were over, the dental hygienist again visited the various classrooms with organized lessons for each grade level. Some lessons were in dental anatomy. Through "chalk talks" the anatomy of the tooth was made comprehensible even to the young child. He saw the pulp, or as it is commonly called, the nerve, down in the center of the tooth; and through illustration he was shown how decay progresses and why pain is an accompaniment to dental diseases. A large model of teeth and tooth-brush was used to demonstrate the correct method of tooth brushing. Later, applicators, or make-believe tooth-brushes, were used, and tooth brushing became a game. Stories were told to the children in which we dramatized the teeth, and they became "houses" and the decay became "D Kay Brownies."

The rapt attention which the children gave to their dental lesson was proof conclusive of the keen interest which the work had aroused. The moment the classroom was entered, the dental hygienist was applauded by the clapping of hands or was given a most radiant smile of greeting.

In 1925 when this program was introduced in Berkeley, only 18 per cent of these children had good teeth and 82 per cent had defective teeth. At the present time, 66 per cent of all children in the elementary schools have good teeth, for the program was extended to include the entire elementary school system.

Has this educational program been effective? Is it possible to have children enjoy visits to the dentist? Parents have related that children now insist on being taken to the dentist regularly. We feel it is the approach that is made to a subject that determines one's attitude forever after on that subject. We have taken the kindergarten children and molded their dental attitudes, so that trips to the dentist's office have become anticipated pleasures rather than dreaded memories.

FRUIT GOES UP A POINT

MARJORIE HAMILTON
MADISON, WIS.

Ada Milam Cockefair introduced the balanced lunch idea to the West Junior High School of Madison, Wis. After an interview with Mrs. Cockefair, Miss Hamilton reports on this adventure in practical nutrition.

WHATEVER other markets are doing, the Madison fruit and vegetable market decidedly has gone up a point where seventh, eighth and ninth grade pupils of the West Junior High School are consumers.

When Ada Milam Cockefair, physiology teacher, noticed that the children's lunches, bought at the school cafeteria, contained too many starches and sugars, she decided to work out the "adequate lunch" plan. She put it to work in such a way that it became one of the most popular school interests.

Preparing the way for the plan were two small, pink eyed white rats ensconced in a large metal cage. Using the rats as her "subjects," Mrs. Cockefair fed one on a balanced diet containing fruits and vegetables, while the other was fed on a diet consisting mostly of starches and sugars. Because of the rat's short span of life, the children were able and surprised to see the rapid changes that came over the subjects in a week's time. Then Mrs. Cockefair decided to put the "A lunch" plan to work.

Every noon after the children had selected their lunches and put them on the cafeteria trays, a student checked the trays, and if the lunch deserved an "A," a yellow card with a big printed "A" was given to the pupil. To merit a card the pupil had to choose:

Fruit or *vegetable,* besides potato, or both.

Milk, ½ pint, or two foods containing milk, such as ice cream, milk soup, creamed vegetable or cocoa.

Other substantial food, two servings in addition to the aforementioned, to include bread and butter, potatoes, macaroni, beans or meat.

Dessert, if desired, but not essential to a good lunch.

A warm food at least during cold months.

Those who went home for lunch were given slips of paper which their mothers were to sign each noon if they had an A lunch.

At the end of the lunch hour, A lunchers could march proudly up to a recording student who took their cards or slips and marked beside their names the number of A's earned.

But what was done with all the A lunch marks? Did the students have a special place on their report cards for a lunch mark? No. They worked out with Mrs. Cockefair a plan which showed they had made the grade, a plan which made those just a little below wish they had invested more heavily in the newly popular fruits and vegetables.

Of the 310 students in the three grades, 175 having the most A lunch marks for the semester worked together to put on a big banquet. The banquet, held for these 175 pupils, was altogether a student project. Even the money for it was raised by them in cooperation with the English and speech departments. With the help of these departments the students wrote health plays and presented them before the school to earn money.

To add to the banquet treasury the students sponsored matinee dances after school and charged each attending pupil 5 cents.

With the necessary funds on hand, the students began to make plans for the banquet. Those who were taking art courses worked with the art department in making the place cards, bits of drawing paper on which perched impertinent carrots and grinning grapes, boasting big A's.

Other pupils, with the aid of the music department, wrote and put together souvenir booklets of A lunch songs. Songs, such as this one to the tune of "Smiles," were earnestly included:

There are foods that make us happy,
There are foods that make us blue,
There are foods that give us indigestion,
There are foods like these that never do.
There are foods of liquid composition,
There are foods that are quite hard to chew,
But the foods that we will keep on eating
Are the foods of the A lunch crew.

Finally, on the day of the banquet, the enthusiasm of the students expressed itself in huge bouquets of apple blossoms, lilacs and tulips, brought to decorate the tables.

The banquet! This was the way to show everybody in what high regard the A lunchers held fruits and vegetables. What fun it was!

The toastmaster was a student. The speakers were students. The program was arranged and given by students. The teachers, each of whom had a special student host or hostess, sat as guests and enjoyed themselves. The student songs were sung during the banquet. After the dinner, which of course was an A banquet, and after some student musical selections, the student speakers gave their talks. With Mrs. Cockefair's help, they had prepared speeches on health and on A lunches. Altogether, fruits and vegetables were the most popular "among those present" at the banquet. One student blissfully remarked at the end of the evening, "Well, I didn't know a banquet could be like that. I never was at a banquet before."

Last fall, students were asked to tell in a letter to their teacher what they thought of A lunches. The following opinion is typical.

Dear Miss Divine,

Last year West Junior High had an A lunch banquet. I do hope they again have one, because it gets children to eat a wholesome meal and also a good dinner at the banquet. They have an entertainment which is very interesting. I hope Mrs. Cockefair's idea will again carry out this year.

Yours truly,
Betty Gilbert.

These lunches are decidedly an institution at West Junior High School. Mrs. Cockefair has delegated the management this year to a new group of twenty-five students, carefully chosen on the basis of scholarship, interest and responsibility and known as the Physiology Club. This group already is making plans for a vigorous campaign. Interest has been adequately shown by sixty children who have volunteered to care for the two new rats, clean their cages and feed them. Many others have been asking Mrs. Cockefair when the A lunch cards are going to be given out. The Physiology Club is planning to have school programs in which the members will present health plays; they will also take care of the preparations for the banquet.

There is no doubt that these fruit and vegetable stockholders will persuade a good many others to put their money in this "safe investment," which produces ample interest of more than one kind. And there is no doubt, too, that one of the most convincing arguments will be this song written to the tune of "Auld Lang Syne" by an A luncher:

There was a merchant had two sons,
And these two sons were brothers.
Bohunkus was the name of one,
Josephus was the other's.

Now these two boys to West High went,
But they were very different.
Bohunkus always ate good food,
Josephus always didn't.

Bohunkus would pick up a tray
And then would go and fill it
With vegetables and fruit and such;
Josephus always didn't.

Now these two boys for football tried,
But they were very different,
Bohunkus hit the line so hard;
Josephus always didn't.

NEW HEALTH BOOKS
for teachers and pupils

TEACHERS AND TEACHING

By Frank W. Hart. Price, $1.50. Pp. 285. New York: The Macmillan Company, 1934.

LONG AGO the great Scotch poet Robert Burns expressed a thought which has often been quoted:

O wad some power the giftie gie us
To see oursel's as others see us!

Burns was enunciating a bit of valuable mental hygiene. Such knowledge would contribute much to a better understanding of ourselves and help us to adjust ourselves to our conditions. Teachers need such help more than most persons since their personalities play so significant a part in the guidance of children and youths.

This book should be read by all high school pupils; teachers in the lower grades would find it interesting and profitable. The study is based on the records of a questionnaire which was circulated among high school students in sixty-six high schools in widely distributed sections of the country. These high school seniors were asked to write descriptions of the teacher they liked best, the teacher they liked least and the teacher they considered the best teacher. Apparently these youngsters took their problem seriously. They were so anxious to write in strict confidence about their opinions that many pupils who were absent when the questionnaire sheets were given out appealed for the privilege of filling in one of the blanks. There was almost no evidence of horseplay in these reports.

The large part of the book is devoted to a reproduction of these reports. The author has carefully summarized the results of this study. In four cases out of five the best liked teacher is also regarded as the best teacher. Among those characteristics most frequently men-

(Continued on page 189)

THE A LUNCH BANQUET WAS THE WAY TO SHOW EVERYBODY IN WHAT HIGH REGARD THE A LUNCHERS HELD FRUITS AND VEGETABLES

QUESTIONS AND ANSWERS

Insulin

To the Editor:—I have heard that insulin, when administered to healthy, normal, but thin persons, is beneficial as a tonic. Has insulin a tonic value for nondiabetic persons? I am of the opinion that insulin is injurious to nondiabetics because it may cause diabetes to appear after insulin is discontinued. Is this true? A newspaper clipping says in regard to the injurious effects of insulin, "Whereas insulin staves off deaths from diabetes, it also contributes indirectly to an increase in diabetic cases." What is meant by indirectly increasing diabetes? If there is a book available that will answer my questions, I should like to purchase it. I should also like to get literature on recent researches in regard to insulin as a tonic for nondiabetic persons.

J. Z., Oklahoma.

Answer.—In answering the question about insulin it should first be pointed out that there is no such thing as a tonic in the best accepted sense of the word. Insulin, under proper conditions, may be useful to thin persons desiring to gain weight, but not in the way that is usually visualized by the nonmedical person who uses the word "tonic." It is quite true that the administration of insulin to certain patients has produced an increase in appetite and a gain in weight. Whether this will follow in every case would have to be ascertained by trial, and that can be done only by a physician.

Insulin is the product prepared from the pancreatic glands of cattle for use as a substitute for the internal secretion of the human pancreas which is absent or reduced in cases of diabetes. Insulin has also been found to be of use in other conditions related to the utilization of sugar in the body.

Insulin, it must be remembered, is like most other potent drugs in that it is capable of great harm as well as much good. Unwisely used, insulin may produce serious and alarming symptoms and even death.

This whole matter should be called to the attention of the physician, and it should be borne in mind that insulin will not increase weight unless one is free from conditions which prevent proper nutrition. The first step in availing oneself of any medical discovery or established medical knowledge is to consult a reputable physician and put the whole matter in his hands.

It is impossible for diagnoses and prescriptions to be given in this department. No honest physician prescribes by mail, because he cannot have any intelligent idea of what a patient needs unless he has seen and examined that patient. This whole question should be taken up with a reliable physician.

The opinion that insulin is injurious to nondiabetic patients is without foundation because it is based on a misapprehension. Insulin does not cause the appearance of diabetes.

One word in the newspaper clipping has been overlooked. That word is "indirectly." What the author means is that diabetes is an inheritable condition and that insulin saves the lives of diabetic children who formerly died before they became old enough to have children of their own. When these diabetic persons whom insulin has saved marry and have children, they transmit the diabetic tendency. Not all the children of diabetic persons are necessarily diabetic themselves, but they may transmit the diabetic tendency to the next generation. Therefore, insulin which saves the lives of diabetic children may lead indirectly to more diabetes in future generations. This is not the same as saying that insulin causes diabetes in the individual who uses it.

Of course, the solution for the secondary problem created by the saving of diabetic children through insulin is not to condemn insulin and let diabetic children die but to teach them that marriage and parenthood are dangerous for their offspring. Nondiabetic persons should also be warned that it is not wise to marry into a family where diabetes is present because of the danger that the children of such a marriage may be diabetic.

A list of books on diabetes and the use of insulin will be sent on request. There is no book devoted to the use of insulin for building up weight, but the essential information has been included here.

Eyeglass Protectors

To the Editor:—Having noticed a photograph of a tennis player in the April 1934 HYGEIA, I looked up recent issues of the magazine and found the following statement in J. Robert Burke's article in HYGEIA for October 1933: "The risk is slight, and if this is the only objection, so-called unbreakable lenses may be used, although they are not as efficient as regular ones." Casting around for a means of participating in athletic sports, I was forced to abandon the idea when I shattered the frame of my glasses because of an inadequate and cumbersome eyeglass protector. As I am trying to cure myself of stuttering and of being a recluse, it would be of immense help to me if I could, through this means, engage in athletics.

I. F. H., Hawaii.

Answer.—Eyeglass protectors are worn with success by many athletes. It is doubtful whether all such protectors are "inadequate and cumbersome." A check of the major sporting goods companies would undoubtedly reveal that an eyeglass protector is made which could be used in most games and which would not be cumbersome. If the vision is at all adequate, a person should not deprive himself of the joy of playing a game because of self consciousness which might be caused by wearing an eyeglass protector. It is possible, no doubt, to have a satisfactory protector made to order.

However, some athletes, especially tennis players, wear their regular glasses without a protector. To keep the perspiration from the lens, they tie handkerchiefs around their heads just above their eyes. This system is to be recommended, for, if one has average sight with one's own glasses, it is better than using unbreakable lenses which are probably not as efficient.

If you have a question relating to health, write to "Questions and Answers," HYGEIA, enclosing a three-cent stamp. Questions are submitted to recognized authorities in the several branches of medicine. Diagnoses in individual cases are not attempted nor is treatment prescribed. Anonymous letters are ignored.

Fraudulent Cures; Therapeutics; Food Fads; Quackery

To the Editor:—Information is desired on fraudulent cures, therapeutics, food fads, and quack doctors.

J. A. C., New York.

Answer.—You will find a great deal of information about fraudulent alleged cures and quack doctors in the publications of the Bureau of Investigation of the American Medical Association. These publications are listed in a catalog sent free on application.

Information about therapeutics will not be given to nonmedical inquirers. The subject of therapeutics is large and complicated. However, answers will be attempted for any specific questions if they do not involve diagnosis or prescribing of treatment for an individual patient.

Food fads are extremely prevalent and their variety is almost infinite. They are promulgated usually by individuals with more enthusiasm than judgment, or by those who have made a shrewd appraisal of the profits in putting something over on the public. As a matter of fact, it is not necessary to know a great deal in detail about foods and food fads. All that a healthy person needs to know is that an amply varied diet, containing all kinds of good foods, is sufficient to insure satisfactory nutrition. The most important foods are milk, eggs, fruits, leafy vegetables, starchy foods, fats, meats and other proteins. The vitamins and minerals are taken care of by the milk, eggs, fruits and vegetables. Other foods furnish the protein for body building material and carbohydrates for energy.

In general, healthy persons need not give much thought to their food, except to avoid unbalancing their diets, to avoid eating too much or too little and to avoid contaminated foods or foods badly prepared.

Rickets

To the Editor:—Can rickets be cured in a person 20 years old?

D. Z., Illinois.

Answer.—Rickets in a person 20 years of age cannot be cured. By that time the bone changes have become permanent. In some extremely severe cases, surgical intervention may be necessary, but the average case of rickets is not as bad as that.

Rickets is due to a faulty utilization of calcium in the body. It may be the result of a deficiency of calcium in the diet; but more often it arises from an absence of vitamin D, which is concerned in the utilization of calcium and which occurs in appreciable quantities only in cod liver oil or the liver oils of deep sea fish, notably the halibut and the salmon. Some foods contain small amounts of vitamin D, but none have enough of it to be really important. Vitamin D has also been made artificially by irradiation of ergosterol; the artificial preparation is known as viosterol.

Rickets is more important in girl babies than in boy babies because it may give rise to bone deformities in the pelvic, or hip girdle, bones. Such deformities may later lead to difficulties in giving birth to children. Of course, extreme cases of rickets in which the chest is deformed and the heart and lungs are crowded are equally unfavorable in either sex; but with the increased appreciation of the importance of giving cod liver oil, these cases are now rare.

The human body is able to make vitamin D in the skin, provided enough sunlight is available. In northern latitudes, especially in cities, there is not enough sunlight, and consequently vitamin D must be furnished artificially.

Acid Condition of Stomach

To the Editor:—Is there any harm in taking small doses of bicarbonate of soda for an acid condition of the stomach?

W. E. L., Massachusetts.

Answer.—It is not possible to answer simply the question about whether there is any harm in taking small doses of bicarbonate of soda for an acid condition of the stomach.

It is necessary to realize that the so-called acid condition of the stomach may be due simply to excessive acidity or to ulcers of the stomach or intestines, to nervous reactions, to an irritating diet or an excess of food, to disturbances in other abdominal organs, such as the gallbladder or the appendix, or to diseases of the blood. Finally the so-called acid condition may be due to indigestion and fermentation which are caused by too little acid in the stomach.

Taking soda is an illogical treatment for most of these conditions. The drug itself is not particularly harmful, although it may cause discomfort due to the production of gas and may actually stimulate further acid formation. The harm that is or may be done by taking even a relatively harmless drug for relief of a symptom is that the temporary relief obtained causes neglect of the essential treatment, which must be based on discovery of the cause of the symptom.

Toxoid and Toxin-Antitoxin

To the Editor:—How is diphtheria toxoid made, and why has it almost completely supplanted the toxin-antitoxin mixture? I understand that within the last two years a precipitated toxoid has been perfected which will immunize most children by a single injection. Is the child liable to have any ill effects? Is toxoid being used successfully for immunization of adults?

A. B. T., Illinois.

Answer.—Briefly, toxin-antitoxin is, as its name indicates, a toxin which is almost neutralized by antitoxin. The mixture retains immunizing qualities without toxicity or with relatively low toxicity. Because it contains antitoxin, it may sensitize the recipient to subsequent doses of biologic serums, such as tetanus antitoxin, antitoxins for snake venom or other products made from the blood serum of animals.

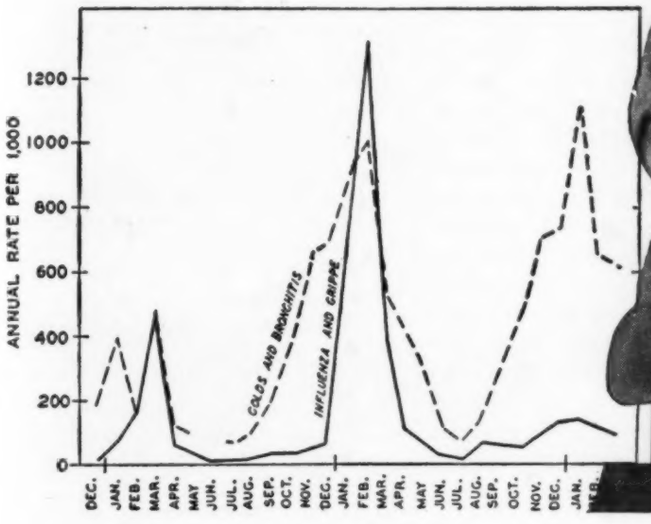
Toxoid is a toxin which has been robbed of toxicity without being rendered void of immunizing power. Toxoid may be prepared from toxin by aging, by heat and by chemical means of various sorts, including alum precipitation and exposure to formaldehyde preparations. Toxoid is free from serum products and is therefore free from the objection which applies to toxin-antitoxin.

Toxin, which is the basis for toxin-antitoxin or toxoid, is prepared by growing diphtheria bacilli in a liquid medium. When the bacilli have grown as much as they will in a given medium, they are removed by mechanical filtration. The remaining liquid contains the toxin, which, before it can be used, is first standardized on animals to ascertain its strength.

Toxoid, besides being free from the danger of creating sensitization toward subsequent employment of serums, has the advantage of being more potent as an immunizing agent and requiring only two doses instead of three, as with toxin-antitoxin. On the other hand, it is more likely to be toxic to older children and adults, in whom toxin-antitoxin is still the method of choice. Lately it has been advocated to use toxoid in older children and adults by splitting the dose.

It probably is worth while to note that scientific opinion is not yet convinced of the efficacy of one dose of alum precipitated toxoid, preferring for the present to rely on two doses.

Don't let February Hazards *lead to serious illness*



FEBRUARY brings many respiratory hazards. The chart above, compiled from data in U. S. Public Health Reports, shows that coughs, colds, and grippe reach a peak at this season.

Do not neglect the first sign of such ailments. They should never be allowed to "hang on." They are weakening to vital organs, and often afford avenues for the approach of serious disorders.

Go to your physician promptly. Give him the opportunity to correct any disorder in its early stages. Have him make a thorough examination so that he may forestall serious conditions.

X-ray Examination Important

X-rays play an important part in such an examination for they are one of the chief aids in detecting disease in the lungs and sinuses. They provide accurate, graphic facts which often are obtainable in no other way.

X-RAYS HELP TO KEEP YOU WELL

NRA CODE

● *The booklet, "X-rays and Health," tells how x-rays help maintain health. Send for a copy.*

EASTMAN KODAK COMPANY, ***Medical Division***
345 State Street, Rochester, N. Y.

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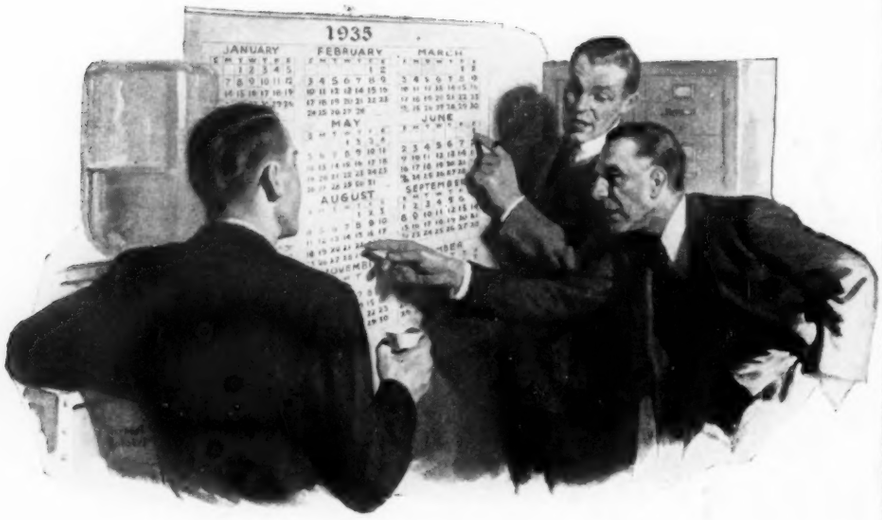


Hay Fever

MANY a hay fever sufferer can point to a calendar and foretell almost to the day when his misery will begin. Often, he knows how long it will last.

His acute distress is caused by pollen carried in the air from a particular kind of tree or grass or weed or, in rare instances, a flower. Some people may be affected by several types of pollen. Little or no relief may be secured until the particular types are known and proper measures are taken to immunize against them.

It requires patience on the part of the sufferer and thoroughness and understanding on the part of his doctor to find out, in advance of the dreaded season, whether hay fever will be brought on by a tree in April or May, a grass in June or July, or a weed in August or September.

One of the methods by which the doctor finds out which pollen causes hay fever consists of making a series of tiny scratches, about an eighth of an inch long, which penetrate the outer skin. He may make from eight to thirty tests, the number depending upon the variety of air-borne pollens in the patient's locality. On each scratch the doctor applies one drop of a different pollen solution. If a particular pollen has caused past trouble, a slight, itching elevation will appear on the skin where the scratch was made.

Based on the results of these tests, the doctor knows just what to do and when to begin to build up the immunity of his patient against the individual trouble-making pollen or pollens.

Some stubborn cases do not yield to this immunizing process, but a majority of hay fever patients have been made far more comfortable by it. Many of them have been relieved completely.

The time to begin the battle against 1935 hay fever is *now!*

METROPOLITAN LIFE INSURANCE COMPANY
FREDERICK H. ECKER, PRESIDENT ~ ONE MADISON AVENUE, NEW YORK, N. Y.
© 1935 M. L. I. Co.

Do You Know—

1. Why animal experimentation is essential for further progress in biology and medicine? *See page 126.*
2. A frequent cause of nervousness and fretfulness in children? *See page 136.*
3. That George Washington began life with a poor physical heredity? *See page 118.*
4. The functions of the tonsils in the human body? *See page 152.*
5. How to guard against heart disease in middle age? *See page 116.*
6. How to help your baby to walk? *See page 137.*
7. What American city was the first to adopt gymnastics in its public schools? *See page 156.*
8. The key to the therapy of all musical occupational diseases? *See page 132.*
9. Why children should be taught to consider their appearance? *See page 130.*
10. At what ages the various permanent teeth should appear in a child? *See page 144.*
11. Why persons about to marry should make sure that the syphilitic virus is not in their blood? *See page 148.*
12. How best to combat the clothes moth? *See page 141.*
13. What diseases are commonly transmitted by raw milk? *See page 112.*
14. What vitamins are stored in the body? *See page 160.*
15. How occupancy of substandard housing by a third of the population affects the public health in general? *See page 122.*
16. What programs the American Medical Association will broadcast in February? *See page 180.*
17. How health films may be used in state departments of health? *See page 138.*

COMMUNICABLE DISEASE CONTROL IN PUBLIC SCHOOLS

While schools present a splendid opportunity for health education, they may, without any method of determining the presence of disease, be the means of spreading a communicable disease throughout the community.

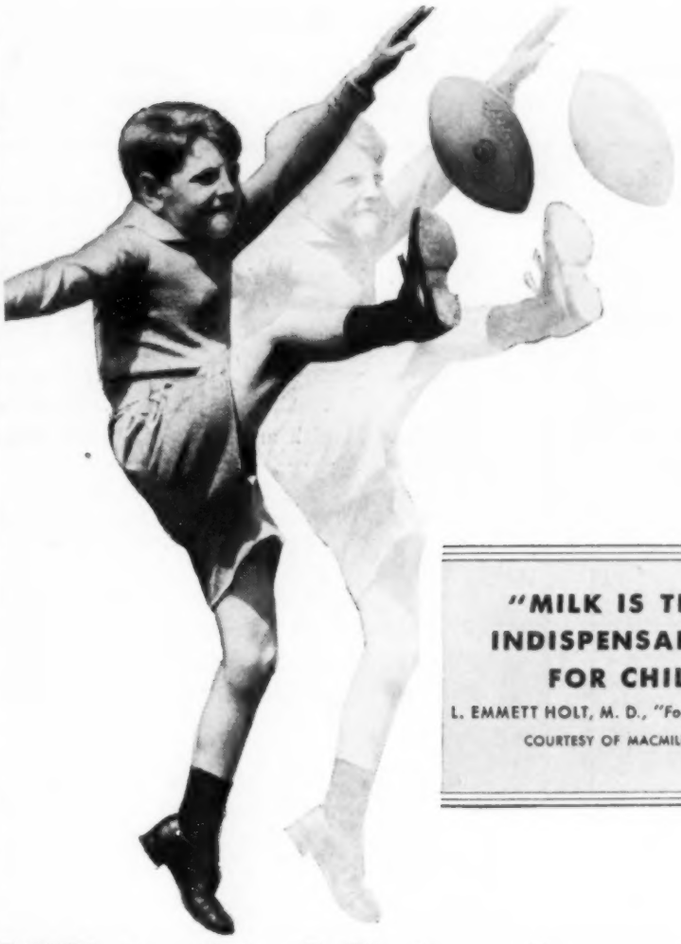
More than 70 per cent of all school absences are caused by medical problems, according to an article in *The Texas Outlook*. The common cold and all respiratory disturbances account for 40 per cent of the absences. Other common causes are exposure to contagion and weather, and religious holidays.

Four persons—the doctor, the school nurse, the teacher and the parent—can do much to control communicable disease. Because daily medical inspection of school children is generally an economic impossibility, this duty of daily inspection falls on the school nurse, the teacher and the parent. The parent sees the child before he starts to school, and if any questionable symptoms are present, the child should be kept at home. If this is not done, the school nurse or the teacher must assume the responsibility. In no case should they attempt to diagnose but should refer questionable cases to the parents with the suggestion that they consult the family physician.

Not only is the common cold infectious in itself, but the train of symptoms associated with it is often identical with the initial symptoms of many of the more serious communicable diseases. Because of the uncertainty involved, a child suffering with what appears to be a common cold should be removed at once from contact with other children.

Symptoms which should arouse suspicion of commencing communicable disease are disinclination to play or study, unusual "tired feeling," drowsiness, lack-luster eyes, cheeks flushed or pallid, chills, vomiting, coughing, sweating, eruption on the skin, discharge from the nose, throat or ears, swelling in the neck, red or inflamed eyes, discharging eyes, sore throat and fever.

In the bright lexicon of health, *early* is an important word: *Early* (and frequent) health examination, *early* immunization against diphtheria, *early* vaccination, *early* diagnosis of tuberculosis, *early* call for the doctor at sign of a cold—and many other *earlies* without which later precautions are of little use.—*Ohio Health News.*



"MILK IS THE ONE INDISPENSABLE FOOD FOR CHILDREN"

L. EMMETT HOLT, M. D., *"Food, Health and Growth"*

COURTESY OF MACMILLAN COMPANY

Milk in this delicious form provides almost twice the food-energy

DOCTORS, pediatricians, diet experts agree that growing children need a quart of milk a day—for growth—for food-energy—for full development. Yet many children do not receive sufficient milk—either because they dislike it or because drinking it every day is monotonous.

Cocomalt mixed with milk is not only a treat to youngsters—but when made as directed it provides almost TWICE the food-energy value of plain milk.

Rich in vital food essentials

Cocomalt made as directed increases milk's food-energy value 70%. It supplies *extra* proteins for solid flesh and muscles; *extra* minerals (food-calcium and food-phosphorus) for strong bones and sound teeth; *extra* carbohydrates to meet food-energy requirements for work and play—and Sunshine Vitamin D.

Wonderful for adults, too

Cocomalt, with its nutritional value, and extra food-energy, is a pleasant way to aid in restoring and maintaining strength—for housewives, business men, convalescents, nursing and expectant mothers. Easily digested and assimilated.

A hot beverage promotes relaxation. Cocomalt HOT at night helps men and women sleep soundly and peacefully.

Cocomalt is sold at good grocery, drug and department stores in ½-lb., 1-lb. and 5-lb. hospital size air-tight cans.

SPECIAL TRIAL OFFER: For a trial-size can of Cocomalt, send name and address (with 10c to cover cost of mailing) to R. B. Davis Co., Dept. JA-2, Hoboken, N. J.

Cocomalt

Prepared as directed, adds 70% more food-energy to milk

ACCEPTED AMERICAN MEDICAL ASSN.

Cocomalt is accepted by the Committee on Foods of the American Medical Association. Produced by an exclusive process under scientific control, Cocomalt is composed of sucrose, skim milk, selected cocoa, barley malt extract, flavoring and added Sunshine Vitamin D. (Irradiated ergosterol.)

AMERICAN MEDICAL ASSOCIATION RADIO PROGRAMS

The American Medical Association Broadcasts Weekly over the Networks of the National Broadcasting Company and the Columbia Broadcasting System

National Broadcasting Company

Middle Atlantic States
WJZ New York
WSRY Syracuse, N. Y.
KDKA Pittsburgh

East North Central States
WCKY Cincinnati
WENR Chicago
WIBA Madison, Wis.

West North Central States
KSTP St. Paul
WEBC Duluth, Minn.
KFYR Bismarck, N. D.
KWCR Cedar Rapids, Iowa
WREN Kansas City, Mo.
KWK St. Louis
KSO Des Moines, Iowa

South Atlantic States
WBAL Baltimore
WMAL Washington
WTAR Norfolk, Va.
WPTF Raleigh, N. C.
WWNC Asheville, N. C.
WSOC Gastonia, N. C.
WIS Columbia, S. C.

East South Central States
WSM Nashville, Tenn.
WMC Memphis, Tenn.
WJDX Jackson, Miss.

West South Central States
KVOO Tulsa, Okla.
WKY Oklahoma City
WFAA Dallas, Texas
KTBS Shreveport, La.
WOAI San Antonio, Texas

The broadcasts over the National Broadcasting Company network are scheduled each Tuesday at 5 p. m. eastern standard time.

Feb. 5. Pipes and a Pump, Dr. W. W. Bauer.

Feb. 12. Rheumatism and Gout, Dr. Morris Fishbein.

Feb. 19. Health Lessons from George Washington, Dr. W. W. Bauer.

Feb. 26. Health and Education, Dr. Morris Fishbein.

The broadcasts over the Columbia Broadcasting System are scheduled each Thursday at 4:30 p. m. central standard time.

Feb. 7. Heart Diseases, Dr. W. W. Bauer.

Feb. 14. Heart Valves, Dr. W. W. Bauer.

Feb. 21. Heart Muscles, Dr. W. W. Bauer.

Feb. 28. Protecting the Heart, Dr. W. W. Bauer.

Programs are available to the stations listed at the right and left. Local stations may not broadcast network programs regularly and in some instances may not broadcast them at all. Local requests for programs might cause local stations to broadcast them.

Columbia Broadcasting System

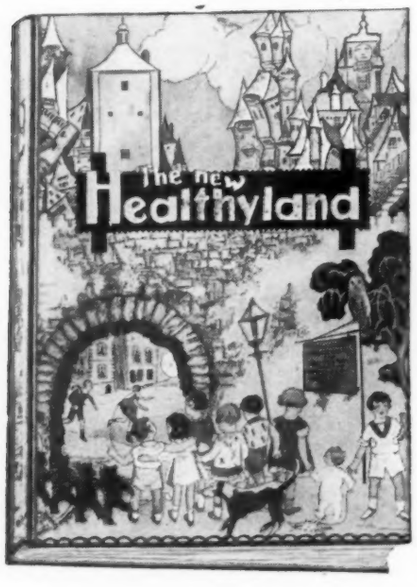
West North Central States
WCCO Minneapolis
WNAX Yankton, S. D.
KSCJ Sioux City, Iowa
KFAB Lincoln, Neb.
WMT Waterloo, Iowa
KMBC Kansas City, Kan.
WIBW Topeka
KFH Wichita

East North Central States
WMBD Peoria, Ill.
WISN Milwaukee
WBBM Chicago

West South Central States
KOMA Oklahoma City
KRLD Fort Worth
WACO Waco
KTSA San Antonio
KTRH Houston

Mountain States
KLZ Denver
KVOR Colorado Springs
KSL Salt Lake City
KOH Reno

Pacific States
KERN Bakersfield
KMJ Fresno
KHJ Los Angeles
KOIN Portland
KFKB Sacramento
KGB San Diego
KFRC San Francisco
KDB Santa Barbara
KOL Seattle
KFPY Spokane
KWG Stockton
KVI Tacoma



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HEALTHYLAND

This beautiful big story book, made up of the popular health material for children that has appeared in HYGEIA, has delighted thousands of children. And it has taught them the lessons of health in an enchanting way.

Only a few hundred copies remain, and in order to close them out at once the price has been cut exactly in half. The book is just as entertaining and appealing as ever. And it is a great bargain at this low price!

A Big Colorful Book Children Love

The 168 large size pages of this book are filled with fascinating pictures, many of them in gay colors. Printed in large type, easy to read, are delightful health stories, verses, and health plays that children can give. There are also interesting letters from children in seven foreign countries telling about their various health customs.

Take advantage of this special price and get several copies of HEALTHYLAND now for gifts. The book would be delightful for any child—your own or some one else's whom you wish to remember on birthdays. But order *now!* At this special low price the limited supply will not last long.

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535 North Dearborn Street, Chicago.

I am enclosing $..... for ..... copies of the NEW HEALTHYLAND at $1.00 a copy.

Name.....

Address.....

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ANEMIA IN CHILDHOOD

The most common of all anemias among children and the most commonly overlooked is the anemia caused by undernourishment, according to a writer in *The Journal of the Medical Association of the State of Alabama.* Children born of weak or anemic parents may show a severe anemia at birth, but, as a rule, the trouble is not evident until after the fourth month.

Among the causes most commonly responsible for this condition are: (1) improper foods, insufficient sunlight and unhygienic surroundings; (2) rickets; (3) prolonged lactation by mothers physically unfit to nurse their babies; (4) adherence to a milk diet alone after six months of age; and (5) intestinal parasites. The supply of iron of a baby at birth is usually sufficient to meet the demands of growth for the first six months, but after this age lack of adequate food with the milk will cause anemia to develop.

In the anemic child a pallor of the skin and mucous membranes gradually develops. The tissues are flabby, fatigue comes easily and gastro-intestinal disturbances are frequent. Nervousness, irritability, poor appetite, improper growth, headache, disturbed sleep, chilliness, cold feet and hands, vague pains, constipation, enuresis, hemoptysis, irregular pulse, a murmur at the base of the heart, and shortness of breath are constant symptoms.

MUSICIANS' EYES

Since eyes tire when held too long at one focus, students of music should learn to take the eyes from the page of music at intervals and to look out of the window at some distant place, a music teacher writing in *The Etude* advises. After such an exercise, the eyes feel rested and keener when one again looks at the music. Holding the eyes to a close focus is a cause of myopia, or near-sightedness, the chief reason why many musicians wear glasses.

The body is often rested by sitting or lying down, but during such periods of relaxation it is a common practice to read and thus to make the eyes go on working. A period of relaxation should include the eyes as well as the body.

The child runs away from home for the same reason that the dog bolts in the hunting field. It is usually because his rights have not been respected. The dog becomes a self-hunter and the child becomes antisocial.—*Leslie D. Kline.*

I CERTAINLY ENJOYED MY VISIT WITH NANCY. AREN'T THE TWINS ADORABLE
WELL, YES, MARY... EXCEPT WHEN IT COMES TO WASHING HANDS. THEN THEY'RE THE TERRIBLE TWINS
NANCY DOESN'T USE THE RIGHT TACTICS WITH THEM. THEY COULD GET TO LIKE WASHING THE WAY MY OWN BOY DID
OH, YOU MEAN WITH THAT LIFEBUOY WASH-UP CHART? WHY NOT TELL HER ABOUT IT
NANCY TAKES MARY'S ADVICE
LOOK, CHILDREN! HERE'S THE NEW WASH-UP GAME AND A SPECIAL CAKE OF SOAP FOR EACH OF YOU
A MONTH LATER
HANDS UP! FIRST LET'S SEE HOW CLEAN THEY ARE
OH, MOTHER! OUR HANDS ARE NEVER DIRTY ANY MORE. I HAVE A 100% CLEAN HANDS RECORD
ME, TOO!

NO MORE DIRTY HANDS IN MY HOUSE

THAT'S what thousands of mothers throughout the country are saying. Keeping active young hands clean and germ-free is no longer a problem in homes where the Lifebuoy Wash-Up Chart comes to visit. Rebellious youngsters reform!

Here's one instance where mother *doesn't* know best. She generally makes a disagreeable duty of washing hands. The Lifebuoy Wash-Up Chart accomplishes more because it makes a *game* of washing hands often. Each wash-up, bath and shampoo scores a point, to be marked up on the chart, until a 100% score is recorded. Rewards—a Health Guard Button and "Whoopo," the spin-win-grin game. By that time Clean Hands are a habit. You'll never need to scold again.

And—what's more... the Chart teaches children, in an interesting picture-story, how hands pick up germs from practically everything they touch, and that washing hands often, *especially before meals*, with Lifebuoy Soap, helps protect health by removing *germs* as well as dirt. That's so important! The Life Extension Institute lists 27 germ diseases hands may spread.

FREE: To mothers harassed by dirty little hands! A Lifebuoy Wash-Up Chart and school-size Lifebuoy Soap for each of your children. Simply fill in and mail coupon below. Your clean-hands difficulties will melt away!

NRA CODE

Lifebuoy
Health Soap

FOR FACE, HANDS, BATH

(This offer good in U. S. and Canada only.)

LEVER BROTHERS CO., Dept. 192, Cambridge, Mass.

Please send me, free, Lifebuoy school-size cakes and Wash-up Charts for my . . . children.

Name.....

Address.....

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WHY you should TRY TAKAMINE

★

—because this type "is best adapted to most efficient brushing" as set forth in HYGEIA. *(See article by Dr. W. M. Gardner in Hygeia, Oct. 1934 issue)*

★

—because the TAKAMINE Toothbrush is the personal toothbrush of thousands of dentists for definite, important reasons! It has the small scientific head, fine quality bristles, long straight bamboo handle (rigid bamboo handle not "distorted" by boiling water) — all specifically designated for most efficient brushing. And it is amazingly inexpensive, to encourage frequent sanitary renewal, or alternate use of day and night brushes!

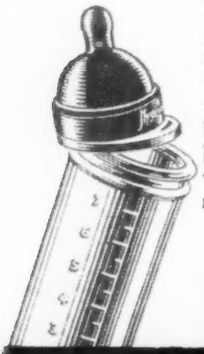
SPECIAL! *If your druggists cannot supply you, send 60 cents for Introductory Family Package of 6 TAKAMINE Toothbrushes—special to Hygeia readers (regular cost 75 cents.)*

★

TAKAMINE CORP.
132 Front St. NEW YORK

Avoid dirt!

Food contamination is a frequent cause of intestinal disorders, still the greatest cause of infant mortality. Play safe. Use this wide-mouthed bottle. It has no neck or shoulder to collect sediment in which germs may breed. As easily cleaned as a water glass. No funnel or brush needed to fill and clean it—two extra hazards of *dirt*.



The Hygeia Breast Nipple is made of soft moulded rubber. It does not become porous. Even with constant use, germ-breeding particles cannot become imbedded in walls. Reinforced base resists nipple collapse.

Folder in carton explains amazing FREE replacement on broken bottles

HYGEIA
The Safe Nursing Bottle

"OCCUPATIONAL DISEASES" IN CHILDREN

(Continued from page 136)

the bath may safely be prolonged for these purposes.

Cleanliness is not the only function of the bath, nor is the water bath the only bath needed by the baby. The skin is an active bodily organ. It does more than acquire dirt and perspiration which are to be washed off at regular intervals. A few substances are absorbed through the skin, and some are eliminated in the same way.

The air bath, or sun bath, is a daily necessity. Every infant should have at least an hour when he may roll and kick without the hindrance of any clothing. In winter this should be done in a warm room on the bed, with protection against the danger of his falling off. In summer it should be done in the baby yard, outdoors and just at the edge of the shadow. It is difficult at times to avoid excessive sunburn, and as the same benefit is gotten from indirect as from direct sunlight, the direct rays of the sun are not necessary.

For older children, the crawlers and runabouts, exercise is more or less automatic. Supervision and control are necessary to avoid overfatigue or overheating. No child should be allowed to play so long or so hard as to use up his strength and draw on his small reserve. The reserve energy of children is always small. Fatigue is the most common cause of trouble at this period of life when the child has no judgment as to his limitations. Adults are aware of oncoming fatigue and can reduce activity or, when necessary, force it up to a certain point without permanent exhaustion.

The child, on the other hand, passes suddenly from full vigor and enjoyment of his play to extreme fatigue or exhaustion. He usually has used up all his store of energy before he is aware of it. His reserve is small and quickly burned up. It is slowly replaced and, during this period of replacement, a child is liable to be out of balance in general, showing poor appetite, lowered digestive capacity and resistance.

The uncontrolled attempt to keep up with the older or stronger companion frequently accounts for unsatisfactory temperamental and physical conditions. At this difficult age, from 18 months to 5 years, the child ideally should never be allowed to reach his limit of endurance or tolerance of excitement, play or exposure to excessive heat or cold.

Rest before fatigue, bed before drowsiness, sleep before fretfulness, these three things are necessary to avoid frazzled nerves, aching muscles and disturbed digestion.

Finally, the rapid growth of the baby in size and the equally rapid increasing ability to use his body; the discovery of sight, hearing, speech, sensation and memory; the combining of all these new abilities into a normal working of the young human machine represents the greatest task that the growing child has to face. This process usually goes on so naturally and quietly that parents think little of it as they see their children develop. Nevertheless, appreciation of what a complex piece of business is being carried on should make them better able to understand the possible dangers attendant on this period of life.

We can stand strain and hardship better after growth is done and time enough has passed to season and harden our tissues. The young soldier cracks up long before the seasoned veteran. Youth is tender, maturity tough and old age fragile. The foundation for the last two stages is laid during the earliest years.

STRUCTURAL POINT OF VIEW

(Continued from page 137)

or seventh month he may begin to sit up. Here parental interference is justified. If you see him sitting sagged over on his tummy and persisting in this position, put him flat. This sagging position is a warning that muscles are not ready to take the load. When they are, you will see a "West Pointer" instead of a "doughboy."

Later on, after doing many things in the lying and sitting positions, he will start on a new voyage of adventure on his elbows and knees. Courage and strength soon raise him to his hands and knees, and finally he begins to creep. Keep him in the creeping stage as long as possible, because a long time creeper is a stronger and better walker. Then one day he will be on his feet! This is the time to curb parental ambition. Do not let him take hikes across the room. Instead, insist on frequent rest periods between short strolls. At this period, watch for fatigue. Fatigue has a detrimental effect on muscle fiber and, if allowed to persist, can destroy it.

Irritability and incoordination are among the signs of fatigue. A fresh baby starts out smiling with a bright expectant twinkle in his eye and a little uncertainty of motion. The baby who is beginning to tire has a trace of tension on his face plus increasing inaccuracy and slowing down in the tempo of movement. He may not

"OCCUPATIONAL DISEASES" IN CHILDREN

want to stop, but the brakes should be put on at this point. Give him a diverting toy, and let him play with it in the lying position. This will not spoil his feeling of achievement but will change his endeavor.

There are certain simple exercises that should be given the baby in the very beginning; he will progress to harder ones as strength increases. These exercises can be given as games before the morning bath. Babies love them. Exercise should not interfere with the baby's own instinctive activities but merely supplement them.

If you develop the proper foundation for your baby from the very start, when he does stand upright his bones and muscles will be straight and strong, and you will find him ready to face the world with at least a better chance for health and vigor.

(To be continued)

HIGHLY GEARED BUSINESS MEN DIE YOUNG

Statistics substantiate the belief that no small number of "successful" business and professional men die young. The untimely deaths of these men have been found to be the result of a serious form of degenerative disease of the heart, arteries, kidneys and brain, although no apparent defects were noted while they were living, according to a bulletin of the Chicago Tuberculosis Institute.

Continual "running in high gear" with little or no abatement is usually the underlying cause. Most persons who are the victims of this type of death never learned how to play as well as work toward a successful life. Life insurance companies are well aware of the truth of these statements and generally consider these individuals as poor risks. All generalities, of course, are subject to exception; there are certain persons who seem to thrive on persistent hard and intensive work and who live to an old age. One must reckon with heredity and the capacity for hard work.

CORRECTION

Dr. James A. Tobey has called attention to the fact that in his article on "Tuberculosis and the Kings of France" in the November 1934 issue of HYGEIA, he erroneously stated that Francis I was married to Catherine de Medici. The famous Catherine was married to the son of Francis, Henry II, who was succeeded by his three sons, Francis II, Charles IX and Henry III.

Heinz Strained Foods include—Strained Vegetable Soup, Peas, Green Beans, Spinach, Tomatoes, Carrots, Beets and Prunes.

ACCEPTED AMERICAN MEDICAL ASSN

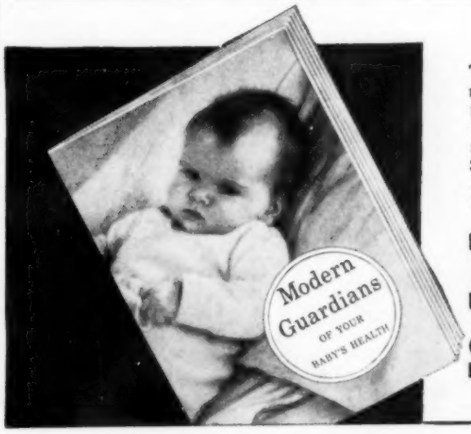
WHY COOK VEGETABLES FOR BABY?

Heinz retains higher vitamin content than is possible with ordinary home-kitchen methods

MOST home-cooked, home-strained vegetables cheat baby of some of the vitamins and mineral salts you may believe he is getting. Often, market vegetables are days old—already having lost precious nutrient content. Ordinary home-preparation methods further dissipate these values.

There is, of course, no way to measure vitamin and mineral content except by scientific tests. Many impartial tests of this kind show that in Heinz Strained Foods these nutrient values are retained to a higher degree than is possible with ordinary home methods. Heinz vegetables are hours-fresh. They are cooked and finely strained without exposure to vitamin-destroying air—then vacuum-packed into enamel-lined tins.

Try three tins of Heinz Strained Foods. Notice how quickly your child takes to their fresh flavor and color. And *know* that he is getting, day after day, an abundant, even quota of the valuable nutrients he needs. Ask your grocer.

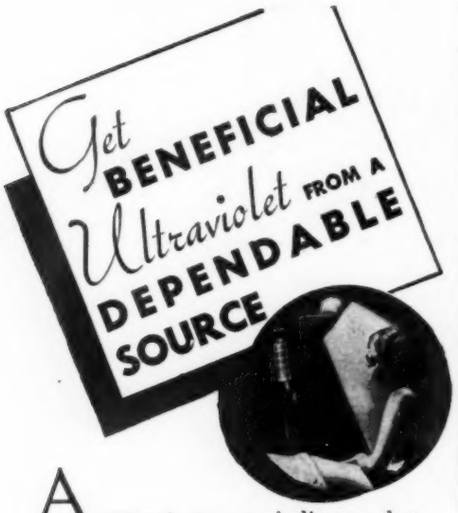


BABY'S DIET BOOK

This new book shows what each vitamin and mineral does for Baby—and in what foods they are found. This new 60-page book, "*Modern Guardians of Your Baby's Health*", has been called by many mothers the most useful of baby books. Send labels from 3 tins of Heinz Strained Foods and 10 cents and receive your copy. Address H. J. Heinz Co., Dept. H202, Pittsburgh, Pa.

HEINZ Strained Foods

A Group of the 57 Varieties



A recent survey indicates that about 90 per cent of all quartz-mercury arc lamps in use today are "Hanovia". Sunbathe in rich, beneficial ultraviolet with a Home Model Alpine Sun Lamp —these rays responsible for building sunshine Vitamin-D.

Adolescents should have ultraviolet to protect them during growth. Expectant mothers also may use the lamp to help maintain the necessary calcium level of the blood.

In case of sickness, consult your physician.

ACCEPTED BY THE AMERICAN MEDICAL ASSOCIATION COUNCIL ON PHYSICAL THERAPY

TABLE MODEL—$99.00 F.O.B. NEWARK, N. J.

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CHEMICAL & MFG. COMPANY

Dept. 45, Newark, N. J.

Send me reasons why Hanovia is the best.

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"Ovr-Nite" Heating Pad

REG. U.S.P.O.

Prepared with 1 oz. of water
Stays Hot 11 Hours

An efficient and convenient means of applying heat for relief of pain, cold limbs, etc. Acquires temperature of 170° which it retains for 10 hours. Ready for use in a few minutes. Soft. Pliable. Comforting. Easily fitted to any part of limbs or body. No bursting. No leaking. Pad guaranteed to give 120 hours' heat. Easily cooled when heat is not required. Does not deteriorate with age. Lasts until consumed by actual use. Pad with washable rubberized cloth cover sent prepaid for 95c. Additional heat unit without cover sent prepaid for 50c.

95c *postpaid*

GEORGE J. YORE & CO.

309 Traders Bldg., 305 S. La Salle Street, Chicago

Mention HYGEIA when writing to Advertisers

A HOUSEWIFE LOOKS AT THE COMMITTEE ON FOODS

(Continued from page 164)

and leave the red portion in the bottom of the glass with a thin, yellow tomato "serum" at the top. This brand of tomato juice may be thoroughly chilled and diluted one-half with water, if it is desired to serve only as a palatable refreshment. However, dilution would not be recommended for children. Tomato juice is fed to babies and to children mainly with the definite purpose of providing vitamin C. Mothers are anxious to buy brands of tomato juice in which they are assured that the natural vitamin values are attained in high degree. The appearance of the Seal of the Committee on Foods on the label and in the advertising for accepted tomato juices gives just this assurance.

Withdrawal of acceptance of four brands of tomato juice was announced in a recent issue of *The Journal of the American Medical Association* with the reason stated as follows: "The sponsors of the listed previously accepted foods are not willing to furnish the Committee with copy of all pieces of new advertising or to inform the Committee of changes in the composition of the products in accordance with the requirement of its amended Rules and Regulations. This material and information are necessary to assure the Committee that the conditions of acceptance of the products and the advertising are being fulfilled. The requirement is essential to the maintenance of the standards of food composition and advertising as expressed in the Rules and General Decisions of the Committee. There is no apparent justifiable reason why the sponsor of an accepted food who is manufacturing or distributing a wholesome product of full nutritional value and is using truthful and proper advertising should not be willing to agree to inform the Committee of changes in composition of the food and furnish copy of all pieces of advertising, involving only nominal expense and time. Since the sponsors of the listed accepted foods are not willing to comply with this simple requirement to assure that the products and the advertising are being maintained acceptable, acceptance has been withdrawn."

There are so many accepted brands that for use in my own home I have chosen these in preference to brands that are not accepted. According to my taste, tomato juice is improved greatly by the addition of a small amount of salt; it is also improved by thorough chilling without the addition of ice or water in the case of most brands. The addition of lemon juice is considered entirely wholesome for children; 1 tablespoonful may be added to each serving of tomato juice. Tomato juice is delicious when used instead of some other fruit juice in cooking, for instance, in a fruit cake. In the following recipes, use the rich canned tomato juice, not the thin juice poured off canned tomatoes.

Tomato-Milk Cocktail

½ cupful chilled evaporated milk
¼ teaspoonful celery salt
½ teaspoonful salt
Dash of black pepper
½ cupful shaved ice
1½ cupfuls chilled tomato juice

Mix the seasonings with the evaporated milk and ice. Pour the tomato juice into the milk, stirring vigorously, and serve immediately in cold glasses.

Tomato Sherbet

2 cupfuls tomato juice
2 tablespoonfuls lemon juice
2 tablespoonfuls sugar
¼ teaspoonful salt

Combine the ingredients, and agitate the mixture in a freezer until the crank begins to turn hard. A much better texture can be secured in one of the little freezers turned by hand or by electricity, although the sherbet can be frozen in the tray of a mechanical refrigerator by the addition of 1 teaspoonful of gelatin, softened in ½ cupful of cold water, then melted over hot water and cooled. Stir the mixture occasionally as it freezes.

Serve the sherbet in sherbet glasses to accompany the meat course; freeze it only to a mush, beat it thoroughly, and serve it in cocktail glasses as a first course, or serve it, slightly more firm, as a frozen salad with mayonnaise, in shells made of fresh tomatoes with the center scooped out. The same mixture may be served as a frozen soup in bouillon cups. It is extremely appetizing, and it may be seasoned according to taste before freezing.

Tomato Tapioca

3 cupfuls tomato juice
2 tablespoonfuls sugar
¼ cupful quick cooking tapioca
⅛ teaspoonful salt

Cook the ingredients together in a double boiler until the tapioca is clear but has not lost its shape. This requires about fifteen minutes. Pour it into individual molds, chill thoroughly, unmold and serve garnished with whipped cream.

Tomato Jelly

Soak 2 tablespoonfuls of plain gelatin in 1 cupful of cold tomato juice for about three minutes or longer. Add 1 cupful of boiling

A HOUSEWIFE LOOKS AT THE COMMITTEE ON FOODS

tomato juice and stir until the gelatin is melted. Pour it into molds, and allow it to chill. Unmold and serve it on lettuce with mayonnaise.

Instead of all tomato juice, half water may be used if the juice is exceedingly concentrated in flavor. The water may be that poured off fresh boiled celery, onions, celery leaves or a mixture of celery and onions to which have been added a small piece of bay leaf and a piece of peppercorn. Worcestershire sauce, lemon juice or tabasco sauce may be added to the tomato juice.

A number of tasty additions to the tomato jelly are possible. Allow the jelly to congeal partially in a bowl; then fold in the solid material, and put it into molds. One may add chopped, fresh, green onion tops, shredded cabbage, grated carrots, diced apples, diced fresh celery, strips of canned or fresh pimentos or chopped canned mushrooms.

Molded tomato jelly is such a colorful and wholesome addition to meals that it may appear often as a salad. Decorate the mold as follows: Pour only enough liquid into each mold to cover the bottom, and allow it to congeal. Spread it thinly with liquid tomato jelly, and decorate with slices of hard cooked egg, rings of green pepper or yellow cheese cut into fancy shaped pieces. Allow this to chill; add a small amount of liquid jelly, and allow this to harden before finishing filling the mold. Turn the jelly out of the mold, and garnish it with parsley, canned asparagus or peas.

Cookery Uses of Tomato Juice

Tomato juice is an excellent addition to meat since cooking meat in a slightly acid solution tends to make the fiber of the meat more tender. Pour tomato juice over the top of a meat loaf, a pot roast or a thick steak which is to be baked. Thicken the liquid in the roasting pan. Tomato gravy made of concentrated meat or chicken broth is delicious. To give the gravy good color, the flour may be spread thinly on a pan and browned in a moderate oven until it is golden brown.

Tomato juice adds greatly to the flavor of beef broth, especially if the broth is thin and watery or if it is too rich in fat.

Poach eggs in tomato juice instead of in water; remove the eggs; add butter, and thicken the juice as for gravy. Tomato gravy is excellent with hot hard cooked eggs.

As previously stated, the alkalinity of the tomatoes neutralizes the acidity of the meat or eggs in the body.

Spanish Meat Balls

2 pounds ground steak
1 cup uncooked rice
2 cans tomato juice
1 chopped onion
1 tablespoonful salt
¼ teaspoonful pepper

Mix lightly and thoroughly all the ingredients except the tomato juice; then shape into balls about ½ inch in diameter, but do not press the balls tightly. Brown lightly in hot butter in a shallow pan; cover the meat with tomato juice, and cover the pan tightly. Bake the meat until tender in a moderate oven at 375 F. Space must be allowed in the pan for expansion of the rice as it cooks.

Pink Puffs

1 cupful fresh, hot mashed potatoes
¼ cupful hot tomato juice
1 teaspoonful butter
Few grains salt
1 egg white

Pink puffs are delightful for convalescent children. Season the mashed potatoes; add the butter and tomato juice; fold in the stiffly beaten egg white; press through a large canvas pastry bag in mounds onto a greased baking sheet, and brown delicately in the oven. Lift each puff off the baking sheet with a pancake turner, and place it on a hot serving plate.

[Note.—In the March issue, Mrs. McCray will discuss fish. Lists of the accepted foods discussed each month will be sent on receipt of 6 cents in stamps.]

THE NURSE

The nurse must have method, self sacrifice, watchful activity, love of the work, devotion to duty . . . the courage, the coolness of the soldier, the tenderness of the mother, the absence of the prig (that is, never thinking that she has attained perfection or that there is nothing better). She must have a three-fold interest in her work—intellectual interest in the case, a (much higher) hearty interest in the patient, a technical (practical) interest in the patient's care and cure. She must not look upon patients as made for nurses, but upon nurses as made for patients.

—Florence Nightingale.

The total estimated cost of tuberculosis is close to 1 billion dollars. Over 315 million dollars is wasted annually through loss of future earning power cut off by death, 300 million through loss of wages and 150 million for the cost of treatment.

GERBER
Announces a new process
SHAKER-COOKING
. . its greatest improvement in Strained Vegetables FOR BABY

Stirring distributes heat evenly.

All Gerber Strained Vegetables are now vigorously *stirred* as they steam-cook in their cans . . a revolutionary new process that shortens cooking time 40% to 50% . . gives fresher, finer flavor and brighter color . . cooks every particle more uniformly . . and insures thorough sterilization without overcooking.

This costly process, for which Gerber has applied for patents, has never before been attempted in canning. We adopted it, just as we did the glass-lined retorts, the air-excluding equipment, the moisture-reduction in vacuum, the monel screens, because this extra care gives your baby finer, more nourishing foods than you could get in any other way.

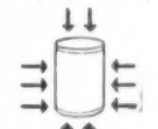
Every Product Specially Prepared for Baby

Gerber's Strained Vegetables are especially grown for Baby. We rush them crispy-fresh to the cannery. To further conserve vitamins, we put them through every process with air excluded . . pre-cooking . . moisture regulating to save minerals . . straining five times as fine as your kitchen sieve . . cooking in cans by steam.

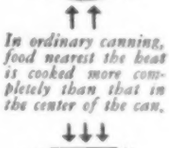
Gerber's Strained Vegetables are more *scientifically* prepared—minerals and vitamins better conserved—than is possible with home equipment. Gerber's are unseasoned. Serve as they are, or slightly seasoned as taste or your doctor directs.

* * *

Strained Tomatoes . . Beets . . Green Beans . . Vegetable Soup . . Carrots . . Prunes . . Peas . . Spinach . . 4½-oz. cans. *Strained* Cereal . . 10¼-oz. cans. *Ask Your Doctor.*



In ordinary canning, food nearest the heat is cooked more completely than that in the center of the can.



Gerber Shaker-Cookers shake can 140 times a minute so that every particle comes in close contact with the heat.

Gerber's
9 Strained Foods for Baby
Hy-2a

Mothers! Here is help for you, if "Baby won't eat." Scientific information . . . practical suggestions . . . telling how to establish wholesome, normal eating habits. FREE booklet. Send for it.

Gerber Products Company
Fremont, Michigan
(In Canada: *Grown and Packed by* Fine Foods of Canada, Ltd., Windsor, Ont.)

Please send me free copy of "Mealtime Psychology," by Dr. Lillian B. Storms. (Enclose 10c if you would like a picture of the Gerber Baby ready for framing.)

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Schools and Camps

The Bolles School —a boys' preparatory school in FLORIDA.
Enrollment includes sons of a number of outstanding members of the medical and dental professions. Thorough preparation for all colleges. Fireproof buildings. Year round outdoor athletics. Catalog B. Write Col. Roger H. Painter, Jacksonville, Florida.

WILSON SCHOOLS
For exceptional children of all ages. Large residences. Fine appointments. College trained experienced teachers only. Individual instruction. SPEECH CORRECTION. Preschool, grades, state accredited high school.
La Verne A. Wilson, Pres., 7 Arnold Place, Dayton, O.

Schools for Backward Children

Beverly Farm, Inc. Home and school for nervous and backward children and adults. Successful social and educational adjustments. Occupational therapy. Dept. for birth injury cases. Healthfully situated on 220-acre tract, 1 hr. from St. Louis. 7 well-equipped buildings, gymnasium. 37th year. Catalog. Groves Blake Smith, M.D., Supt., Box H, Godfrey, Ill.

<> TROWBRIDGE TRAINING SCHOOL <>
Home school for nervous, backward children. *Best in the West.* Beautiful buildings. Spacious grounds. Experienced teachers. Individual supervision. Resident physician. Enrolment limited. Endorsed by physicians, educators. Booklet. E. Haydn Trowbridge, M.D., 1810 Bryant Bldg., Kansas City, Mo.

Physiologic Birth Control

THE RHYTHM
Of Sterility and Fertility in Women

A Discussion of the Physiological, Practical and Ethical Aspects of the Discoveries of Drs. K. Ogino (Japan) and H. Knaus (Austria) Regarding the Periods When Conception is Impossible and When Possible.

By Leo J. Latz, M.D., LL.D.

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1235 Republic Building CHICAGO, ILL.
Write your name and address on a postal card, mail it to us and we will send you our
FREE PAMPHLET

"A Child is to be Born"

Of the most absorbing importance to expectant mothers

AN ENCOURAGING AND SYMPATHETIC BOOKLET 15c

American Medical Association · Chicago

THE EYES IN INFANCY AND CHILDHOOD

(Continued from page 151)

follicular type is more obstinate and has a tendency to chronicity.

Spring catarrh is not a common disease of the conjunctiva. Sometimes, with the buds and blossoms and warm weather there is a blossoming out and piling up of flat little lumps, somewhat resembling flakes of buttermilk curd spread in a saucer, on the lining of the lids and on the covering of the eyeball about the cornea. The condition may persist for years, disappearing in part during the winter and returning in the spring. It usually attacks both eyes, and there is a feeling of heat, of suffusion with tears and sensitiveness to light. Cold compresses, smoked glasses and astringent remedies are used in the treatment.

Pink eye is an epidemic form of the acute variety of conjunctivitis occurring most frequently in spring and autumn. There is profuse discharge, and all the other symptoms of conjunctivitis are markedly sharpened. It is caused by a germ infection and responds to the same treatment as the acute catarrhal variety.

Despite a pocketful of marbles, 8 year old Johnnie, usually full of play and whimsy and never at all downcast because of the many patches on his breeches and the rope that held them up, had not been happy for several days. One morning, as he woke and looked at the light coming in through the window, his eyes began to run with profuse tears and hurt with the light. The light came in only for a little while every morning, for it cannot be said that Johnnie and his parents lived in a deluxe apartment; in fact, it was one of those tenement shelters, dank, dark and overcrowded, where the so-called sinews of the nation grow strong or otherwise on the rations of poverty and the neglect of sanitation.

Johnnie quickly turned his head from the window, lowered it, shielded his eyes with his arm.

"Gee, ma, my eyes hurt."

"Come here and let me look."

But Johnnie held his eyes spasmodically tight and was afraid to open them. The tears kept overflowing, and the dark corners of the house suited him best.

Later his mother took him to an eye clinic. Johnnie was a brave, sensible little fellow. After some pleasantries and a bit of boy-to-boy talk, the doctor succeeded in getting him to open his eyes so that he could be examined.

What the eye physician found was that there were several sector-like patches of redness on the white of the eye. At the point of each patch was a pinhead sized grayish elevation, a little spot; there were two such spots at the junction, or limbus, between the white and the colored part of the eye, and one spot was found on the cornea.

These little solid, grayish formations in the conjunctiva of the eyeball are called phlyctenules. Because they are surrounded by areas of inflammation, the disease is called phlyctenular conjunctivitis. It is a frequent eye disease, especially in children of poor physique and poor circumstances.

From the medical point of view no single underlying cause for phlyctenular conjunctivitis has been established. It is an expression of irritating toxemic substances, some constitutional disease or the improper handling of food by the body cells. Scrofulous children, those with some hidden spot of tuberculosis, are most liable to suffer from the disease; infection from pus sources in the teeth or tonsils or elsewhere may be responsible; lack of sunshine and of a proper diet, dankness and overcrowding are among the evil hosts. The disease is not communicable. A child may have repeated attacks of it from time to time continuing into adult life. When the little gray spots are on the cornea, ulceration of the cornea occurs, often leaving opacities and damaging the sight.

But to return to the boy and his mother in the doctor's office, Johnnie's mother volunteered, "I remember he's had something like this once before, when he was little."

"Yes," said the doctor, "that often happens."

"Is there any way of stopping it?"

The doctor, like so many other doctors in the presence of thousands of other Johnnies and their mothers and their economic and social backgrounds, thought of all the splendid and ideal recommendations as to sea air and mountain residence, the best of food and properly regulated diet. He thought, and then he looked at the poor woman before him, and said, "Give him plenty of good simple food; he should have a long course of cod liver oil. Keep him out in the sunshine as much as possible and get a pair of colored glasses to protect his eyes. I'll give you a note to the children's department and to the dental service to have him looked over. And here is a prescription for the eyes." He told her how to use it and said, "Bring Johnnie back again day after tomorrow."

THE EYES IN INFANCY AND CHILDHOOD

"Keratitis" means an inflammation of the cornea; "interstitial" means that the part involved is honeycombed throughout by disease. In the case of interstitial keratitis, the disease of the cornea is of syphilitic origin. It is found in children who have received it as an inheritance from syphilitic parents; it is an unfortunate legacy that stamps and brands thousands of children and wraps the shadow of blindness about them.

It is not the business of the physician to preach; it is his business to tell what he observes and knows. The telling can no longer help those afflicted, but one would like to hope that it may save many thousands of other children from the dread affliction. The story has been told many times as in Brieux's "Damaged Goods" and Ibsen's "Ghosts." It is still being enacted in life today; it can be retold again and again by thousands and thousands of children.

I shall let Edward and Genevieve tell the story for all of them. Edward and Genevieve were brother and sister, 12 and 10 years old. Somehow stunted in growth, they seemed to exist and to move about in an atmospheric pressure greater than that surrounding others. The head of each was squarish, with prominent bumps on the forehead. Between the forehead and the mouth, the face and the nose were fallen in a little. Here a twilight gloom resided. When they smiled, there was a pathetic absence of glow and twinkle; when they laughed, there was a borrowed echo of sickly jollity.

In interstitial keratitis the ears sometimes discharge; often the hearing is dull. There are scar lines about the corners of the mouth; there are old, lived-out lines on oldish faces that are young in years. The lips look as if they had been rubbed with a coarse towel. The front teeth are small and are pointed like pegs or have a scooped-out notch on the biting edge. There may be patches of disease in the nose and mouth. The mentality is usually dull, but sometimes the victims seem transiently overbright, as an excessive flickering before the extinguishing hand of the disease grips in a tight numbing.

The mother of Edward and Genevieve was questioned. She told of frequent miscarriages and of several babies who had been born dead. The Wassermann test of the children's blood proved positive. One of the parents showed a positive reaction to the Wassermann test. Edward and Genevieve were suffering from hereditary syphilis.

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"CLINICAL FEATURES OF VITAMIN A DEFICIENCY" by George B. Eusterman, M.D., and Dwight L. Wilbur, M.D.
"REVIEW OF RECENT STUDIES ON THE ANTINEURITIC VITAMIN" by H. D. Kruse, Sc.D., and E. V. McCollum, Ph.D., Sc.D.
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THE EYES IN INFANCY AND CHILDHOOD

And their eyes? The vision was much reduced. Sometimes the eye first affected by this disease can only count fingers at close range or merely see the movements of the physician's hand before the eye. The disease spins and hangs a veil of invisibility and murk before the eye. Usually one eye is involved first, then the other.

The chief trouble is in the cornea, the eye's little window that is normally so sparkling bright; it is the transparent doorway through which the images of all things visible enter the eye, inform the brain and become part of the conscious life. This little window becomes dull and lusterless. In mild cases there is an obscuring haze, as of ground glass. In severe cases, at the height of the disease, a drab, heavy curtain that the daylight can hardly penetrate is formed. In the severest cases the neighboring structures are involved in the inflammation, and the cornea becomes glued to them, distorted, flattened; or it becomes softened and pushed forward. It is no longer a window, but only a sad-looking, disfiguring, sightless scarified skin.

The opacities that form are due to the invasion of cell elements that come to battle the infection; they overcrowd the substance of the cornea, become injured and blot the sight. Scars are left as a result of the healing process. Instead of the clear transparency of the healthy cornea, there is a discoloration, due to the pushing of blood vessels and their contents into the cornea. There is pain in the eye, oversensitiveness to light, and suffusion with tears.

In severe cases the iris and other parts of the middle coat of the eye also suffer damage. Fortunately most cases are not so severe. In about two months the disease reaches its height and improvement sets in. There is always more or less damage to the sight resulting from opacities that are left behind. Whatever sight it is possible to keep comes back gradually, although it may take a year or longer. Sometimes the two eyes are involved at the same time; more often the second one becomes infected when the first one recovers. In this way it may take several years to overcome the disease.

Edward and Genevieve recovered from the disease with fair sight. Their parents could afford to give them the important advantages of proper food and surroundings.

Arsphenamine is used in such cases, along with injections of other drugs and tonics. Various drugs are used locally in the eyes, and hot, moist compresses are applied to put the diseased eyes to rest and to stimulate the process of healing. The complications and symptoms are treated according to indications.

If those who are about to marry, and some of those who are married, would make sure that the syphilitic virus is not in their blood, the tragedies of "damaged goods" would be averted.

[NOTE.—In the March issue, Dr. Cohen will discuss eye diseases during adolescence.]

PHYSICAL EDUCATION DEMONSTRATIONS MAY HELP OR HARM THE CAUSE

"During the past three years much emphasis has been placed by many of our prominent leaders on the value and importance of city-wide physical education demonstrations by the public schools. That a demonstration can be a powerful factor in selling physical education to the taxpayers by educating them in an entertaining way with regard to objectives, content and values, there can be no doubt. But if a demonstration is to have this desirable effect, it must be carefully planned and conducted," a writer in *Mind and Body* says.

"We attended two demonstrations recently in suburban towns, each of which was advertised as one of a series of evening programs to bring to the attention of taxpayers the values of the several phases of the school program, but we are sure the support of the townspeople was weakened greatly. In one case extreme and ridiculous claims for physical education were made in a weak manner from the platform by a teacher, and in the other case the program consisted entirely of dancing and tumbling.

"While city-wide demonstrations produce favorable results, we must not lose sight of the less spectacular but more favorable programs in individual school units. In the latter case many more spectators in the aggregate can be accommodated and it is possible to have many more pupil participants. The greater the number of participants the greater will be the active interest shown by parents, relatives and friends. Furthermore, the school is able to make much more intimate contact with the audience in every way, thereby making more effective appeal from an educational standpoint and decreasing the likelihood that the audience will view the program as a mere spectacle."

SCHOOL AND HEALTH

(Continued from page 174)

tioned by the pupils in describing the teacher they liked best we read:

Is helpful with school work, explains lessons and assignments clearly and thoroughly, and uses examples in teaching.
Cheerful, happy, good-natured, jolly, has a sense of humor, and can take a joke.
Human, friendly, companionable, "one of us."
Interested in and understands pupils.

Most teachers will find this volume as stimulating as a good story, and it offers many valuable suggestions to all teachers who wish to teach more effectively. This seems to be one of the most significant teachers' books of the past year.

THE HEALTH BROADCASTER

A monthly health newspaper published for parents, teachers and pupils by the department of health education. New York City: Board of Education, 157 East 67th Street.

THE DEPARTMENT of health education of the New York City public schools has begun the publication of a monthly health newspaper which is intended to reach parents, teachers and pupils. The editor is Dr. I. H. Goldberger, assistant director of health education.

This is a publication of which the school system of New York may well be proud. It is packed full of news and practical suggestions for teachers, pupils and parents. There are numerous puzzles and problems which teachers can use in their classes. There are three illustrations in the first issue which appeared in October 1934. Each illustration is tied up with some question for the pupils to solve.

All health educators today realize that health education is something more than merely reading from a textbook and reciting. It involves the cooperation of parents, teachers and children. This bright, newsy sheet will be a valuable means whereby they may all work together.

THE CLASSROOM TEACHER AND MENTAL HEALTH

Understanding the Child. Pp. 32. October 1934. Boston: Massachusetts Society for Mental Hygiene, 3 Joy Street.

EDUCATORS today are getting a broader conception of the meaning of health. At one time a child was believed to be healthy if he was free from physical defects. Today, leaders in this field realize that good health is something more than the removal of adenoids and the removal and repair of carious teeth. The child cannot be healthy unless he is able to face the problems of life with a fair degree of success. He must win adjustment.

Understanding the Child, a quarterly publication, offers teachers practical suggestions in this field. The October number is devoted to the classroom teacher and her work in promoting the mental health of her pupils. The opening article, which is on the teacher's own mental health problems, is written by Bruce B. Robinson, director of child guidance, board of education, Newark, N. J. Dr. Mandel Sherman of the University of Chicago has a discussion of the mental health needs of children. Bernice M. Henderson considers the preventive work of the teacher, and Gladys McCallum tells some interesting stories about individual children who have been helped by the classroom teacher.

A sample copy of the October 1934 number of *Understanding the Child* will be sent to all classroom teachers free of charge on request.

THE WELFARE OF THE TEACHER

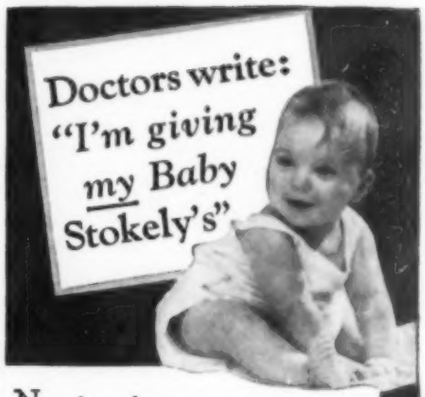
By James Frederick Rogers, M.D. Price, 10 cents. Pp. 69. Washington, D. C.: U. S. Government Printing Office, 1934.

SEVEN years ago the U. S. Bureau of Education, Department of the Interior, made a study of the health of the teacher. The conclusion reached was that "as compared with workers in other fields, teachers are comparatively long lived and free from sickness, the death rate being among the lowest recorded for any occupation and the average absence on account of illness being about half that for workers in other occupations for which we have data." The same study pointed out that teachers, as a class, were "especially subject to nervous wear and tear from causes of mental origin and that every effort should be made to reduce this condition to a minimum."

In this similar study, evidence has been collected regarding the medical examination and care of teachers, the granting of sick leave and of sabbatical leave and the development of plans for health insurance. A careful statistical study is made which gives a good idea of what is being done for the welfare of teachers throughout the United States.

PHYSICAL EDUCATION CONVENTION

The national convention of the American Physical Education Association and its Eastern District Society will be held in Pittsburgh, April 24-27, 1935.



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THE GOLDEN AGE OF PREVENTION

(Continued from page 164)

the dental chair, unafraid and chatting with the doctor, he will not hesitate to imitate her.

Once a child's confidence has been won, once he knows he can bank on anything the dentist tells him, he makes a wonderful patient. His nerves are not frazzled by the pressure and worries of life. He is braver than his parents and really enjoys his visits to the dentist; so does the dentist under such conditions, for children are good fun, even in the dental office. Once this relationship is established between the child and his dentist, the way is open for the great work of prevention, which will be of inestimable value to him in later life.

If parents could suddenly be brought to realize the importance of prevention during this period of a child's life, the budding generation would make the healthiest adults in the history of the nation. The results through improved metabolism, blood pressure, and function of the nervous system and ductless glands would be more far-reaching than the most thoughtful dentist or physician can now imagine.

To bring this about, more dentists would be needed. It is stated on excellent authority that if every grade school child in the country were to receive four hours of dental treatment a year, which is certainly not a high average, there would not be enough dentists to do the work. There would be 202,000 children who could not be taken care of, and the dentists would have no time at all for adults.

The number of dentists actually employed in school clinic work is a small percentage of the total represented in the foregoing figures. The clinic dentists could not possibly minister to all the school children who are not receiving dental care through the initiative of their parents. At present their work is of necessity curative, consisting of stopping toothaches, filling cavities large enough to cause toothache and extracting teeth. All are measures of last resort for seriously sick teeth.

An adequate system of school clinics should provide a modern dental office in each school. This office should be manned by men of proved ability and directed by a dentist of long experience.

The director should have authority to examine the mouths of all children and to issue to the parents charts of the teeth, marked to show not only the operations necessary for relief from present or imminent pain but also the small incipient areas of decay, the filling of which might be called preventive practice. The chart should also carry specific information as to the dietary needs of the child as reflected by the condition of his teeth.

The parents should then be allowed a reasonable time in which to report the child actively under treatment by the family dentist. A reasonable time should then be allowed for completion of the work. Failing this, the needed dental work should be done in the school clinic with just as meticulous care as would be used in any private practice. Such a program should start in the kindergarten.

Utopian, you say? Perhaps, but many things considered utopian not many years ago are now accepted routine. Our sanitary code furnishes many instances of compulsory prevention of disease.

The field of children's dentistry is the one field of dentistry that could and should be socialized for the inestimable benefit of mankind. The proper care of children's teeth should not be left to the whim of parents who do not understand its true significance or to a dentist who may perhaps be blind to that significance or who perhaps may not treat children.

Early, adequate and continuous dental treatment of children should be compulsory, for it means more than the prevention of tooth decay, toothaches and the loss of teeth and chewing function; it means the prevention of much of the ill health of later life. It must be constantly borne in mind that the teeth have a significance far beyond themselves in their bearing on general health.

Decay of the baby teeth is a deterrent to the development of the child and thus leaves its mark for life. Abscessed baby teeth send infection and toxins into the child's system, establishing other nests of infection which weaken important organs for life.

Much concern is expressed at the rising prevalence of heart disease. Careful experiment has shown that when infection is taken from the pulpless tooth of a patient suffering from degenerative heart disease and sealed in a pulpless tooth in the mouth of a dog, that dog will develop typical degenerative disease of the heart.

It is a solemn thought that when the child is born, 6 years before the permanent molars erupt, the failure of two growing islands of tooth enamel to unite produces a fissure in the enamel which may set in motion a subtle and persistent machinery which will be working throughout the child's life and will cause him to drop dead at the height of his career, at 45 or 50 years of age.

The small cavity which inevitably follows in that tiny enamel fissure may be neglected by a careless parent or dentist until a large cavity has developed in the tooth. Let us suppose that cavity is filled in not too perfect a manner and by means of amalgam. By the time the patient is 20 years old the pulp of the tooth will probably be dead. A focus of infection has been established. The tooth may remain for years, not causing any local discomfort but nevertheless a source for the absorption of infection or toxin or both into the patient's system. Even though the tooth is later removed, colonies of infection and areas weakened by toxin are planted in the muscles or lining membrane of the heart by this absorption, with typical degenerative disease of the heart and ultimate death occurring as a result.

Such absorption does not always affect the heart. The kidneys, the nerves or the joints may suffer instead; it may affect blood pressure or cause anemia; it may cause any disease of the chronic smoldering type whose increasing prevalence is the concern of those who strive for the public health. The day of plagues which wiped out populations is past. The health problem of today and tomorrow is the chronic disease caused by absorption. Teeth and tonsils head the list of the causes of such disease.

A large factor then in the prevention of such diseases is the prevention of dead teeth; and dead teeth are forestalled by the prevention of decay. The prevention of the spread of decay by prompt and adequate dentistry, at any time in life when decay is discovered, is one means of preventing secondary diseases; but the prevention of decay should date back particularly to the days of childhood.

When children's teeth are adequately cared for through proper education of all parents, which would take a great deal of time, or by dental treatment enforced by a paternalized or socialized governmental authority, childhood will indeed become the golden age of prevention. This means not only the prevention of toothaches but the golden age of prevention for much of the suffering and disease of later life.

[NOTE.—In the March issue, Dr. McLean's topic will be "Keeping a Straight Face—and Straight Teeth."]

SEX EDUCATION

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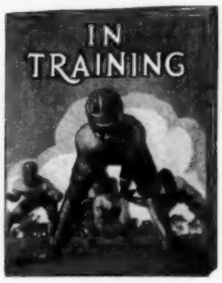

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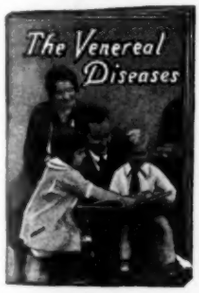

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AMERICAN INTELLIGENCE AND QUACKERY

The American people are regarded as a shrewd people in practically all the activities of life, but this quality of shrewdness fails when recourse is taken to quack doctors and so-called "patent medicines," a bulletin of the Tennessee department of public health says.

It is an astounding fact that so many intelligent citizens should turn to gross ignorance instead of to knowledge, should seek quackery instead of scientific information, for the cure of their physical ills. Assuredly, the medical profession and public health agencies are not 100 per cent perfect, but nevertheless humanity's hope of relief from disease is to be found in those bodies; in them there are always available both competent and conscientious persons. To turn from these agencies to quackery and gross ignorance is to exhibit an exceedingly low order of intelligence.

Many persons are models of precaution when buying clothes, furniture or food, but they take any one's word when purchasing health, the most precious of all possessions. A testimonial from a grateful idiot, a silly actress or a stranded stranger is sufficient to lure such a person on to make the purchase. He would not buy a second-hand shotgun on the sworn affidavits of all of them, but he will take chances of getting poison on the basis of a circular advertising some quack doctor or some quack remedy, although he knows absolutely nothing about either.

Almost without exception, quack remedies are worthless, frequently harmful and could not last if their ingredients were published to the world. Medical quackery is without a single redeeming feature; it is a menace to the human race in that it is willing to traffic in human suffering and human life.

REGISTERING BABIES

An ingenious way of bringing the importance of birth registrations home to a considerable portion of its population has been initiated by the bureau of public health in New Mexico. When automobile license plates were distributed by the state comptroller's office, each set of plates was accompanied by a slip which read: "Attention, Fathers and Mothers! Your automobile is now legally registered. You can prove its age and ownership. Can you do the same in regard to your baby?"

SAFETY PIN IS BABY'S 'FOE'

Chicago, Aug. 17—Safety pins, Dr. Chevalier Jackson of Philadelphia said in an address at a Century of Progress, have caused more deaths among babies and children than have firearms. He explained as follows:

"It happens this way. Babies, by nature and by following the example of their mothers, whom they see with safety pins in their mouths, put the pins in their own mouths."

Woman Hands Self

Mothers . . .

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The new Silva Lining . . . soft and super-absorbent . . . keeps Baby's skin from chafing.

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When buying layettes, ask your store to have a graduate of the Mothercraft course of training wait upon you. It means a year of hard study which makes a girl a professional saleswoman on all Infants' Wear.

Earnshaw Knitting Company
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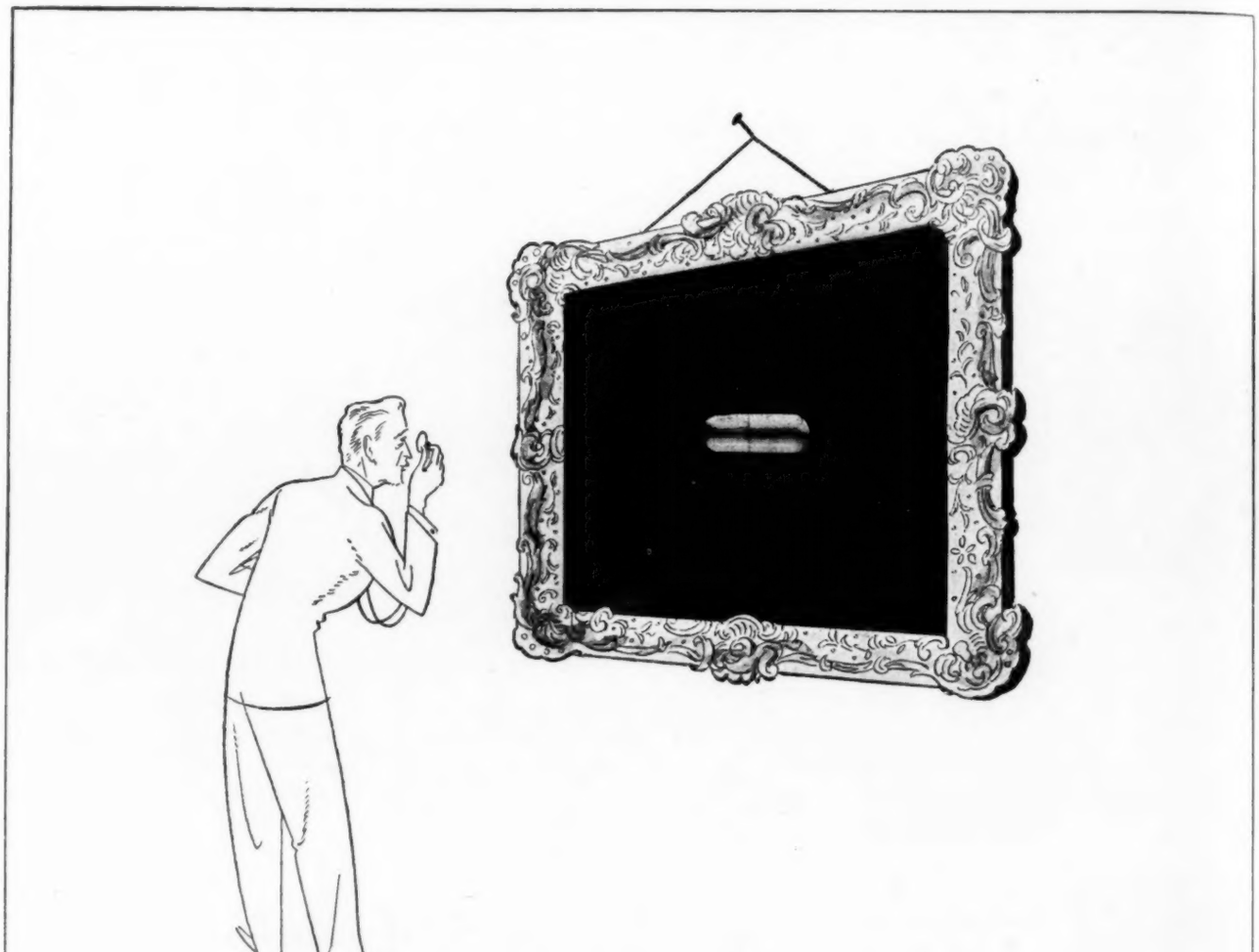
FREE BOOKLET "Baby's Outfit"

Tells about preparing for motherhood; selecting baby's layette, etc. Contains 500 suggested names for boys and girls. Address Dept. H-2.



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But . . . cheer up! Even though ordinary coffee disturbs you so, you don't need to give up coffee. Kellogg's Kaffee-Hag Coffee has 97% of its caffeine removed. Doctors endorse it, because, with caffeine gone, this delicious coffee can't harm you. Kaffee-Hag is real coffee, too. *All* coffee. *Fine* coffee. With all the glorious aroma and flavor you love.

Try Kaffee-Hag Coffee, soon. And when you make it, remember this: To enjoy Kaffee-Hag at its delicious best, brew it good and *strong*. Perk it twice as long as ordinary coffee. You'll discover a flavor so rich, so smooth and completely satisfying that you'll never want to change back to ordinary coffee again. Send the coupon below and 15c for a generous trial can. Or you can buy Kaffee-Hag Coffee at your grocer's.

(Pronounced Kaffee-HAIG)

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